Academic year 2023-2024

ACADEMIC SUPPORT NETWORK AND SATISFACTION IN ACADEMIA: AN EMPIRICAL RESEARCH IN ISLAND UNIVERSITY SETTINGS

by

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ACKNOWLEDGEMENTS

First and foremost, I would like to express my sincere gratitude to my thesis promotor Prof. Thanasis Kizos and co-promotor Assoc. Prof. Christina Prell, for the continuous support of my research, for your patience, motivation, and immense knowledge. Your guidance helped me in all the time of research and writing of this thesis.

Besides, I would like to thank the teachers at Groningen University and The University of the Aegean who has taught me professional knowledge I used in this thesis.

My sincere thanks go to all students and staffs in the University of the Aegean, who answered my questionnaires and interviews, and gave me helpful knowledge for my thesis.

Last but not the least, I would like to thank my family: my parents, my brothers, sisters, and my friends, for supporting me spiritually throughout writing this thesis and my life in general.

This thesis could not finish without all of your support.

Nguyen, Thi Thuy Minh

Mytilene, June 2024

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ABSTRACT

This research aims to investigate the impact of perceived academic support on life satisfaction and explore the mechanisms of the support-seeking network at the University of the Aegean on Lesvos. Employing a mixed-methods approach, the study involved surveys from 160 respondents and interviews with 10 participants. The results indicate that satisfaction with academic support positively affects academic satisfaction, while trust in and availability of resources directly influence life satisfaction. Additionally, the analysis of the support network reveals a homophily effect, with gender, department, and age playing significant roles in the formation of support ties. The island's less formal and close-knit community environment facilitates easier access to support, highlighting the unique dynamics of academic support in this setting. These findings underscore the importance of fostering strong academic support systems and community-building initiatives to enhance both academic and life satisfaction among university students.

Key words: life satisfaction, academic support, academic satisfaction, ERGM, network analysis, homophily

CHAPTER 1: INTRODUCTION

1.1. Problem statement

Social support plays a vital role in determining an individual's overall life satisfaction. Having a strong network of supportive relationships, whether with family, friends, or community, can provide a sense of belonging, emotional sustenance, and practical assistance, all of which contribute to heightened well-being and contentment (Alorani & Alradaydeh, 2018; Kasprzak, 2010; Wan et al., 1996). Within the university setting, academic support is an important source that significantly impacts students' academic satisfaction and performance (Andrew, 2020; Lent et al., 2007; Mulyadi, 2020; Oja, 2011). When individuals feel supported academically, they are more likely to engage with their academic life and achieve their academic goals. This sense of accomplishment and satisfaction can contribute to overall life satisfaction and well-being (Danielsen et al., 2009; Gilman et al., 2000; Zalazar-Jaime et al., 2022). Conversely, a lack of academic support can lead to feelings of isolation, stress, and disengagement, negatively impacting both academic and life satisfaction (Alsubaie et al., 2019; Walsham et al., 2023).

Universities on islands and rural areas typically operate on a smaller scale and, due to their isolation and scale, face many disadvantages. These include a lack of knowledge exchange and limited access to certain resources and opportunities that are more readily available on the mainland or in larger urban centers (Hurford et al., 2017; Mehtap-Smadi & Hashemipour, 2011). However, the small scale can foster a tighter-knit community. This close-knit environment often enhances interactions within the university, providing easier access to support and strengthening relationships among all members, including students, professors, and staff (Tzafea et al., 2020).

Greece has experienced lower university graduation rates compared to other European Union countries. Notably, there is a discrepancy in graduation rates among Greek universities, with those located centrally tending to have higher rates compared to institutions situated on islands. For instance, the graduation rates of the University of Macedonia (Thessaloniki) and the University of Piraeus (Athens) are 82% and 80%, respectively (Lakasas, 2023). In contrast, the island-based University of the Aegean and Ionian University have respective rates of 45% and 37%. The lower graduation rates at island universities could potentially be influenced by many factors such as geographic isolation, limited resources, or challenges in attracting and retaining top faculty and students. It shows the need for further support for students and staff in order to improve academic outcomes and enhance the overall educational experience on the islands.

1.2. Rationale and research questions

Support-seeking or help-seeking is considered a critical step in problem-solving and learning (Nelson-Le Gall, 1985; Newman, 1994). Given the importance of support, understanding its importance in life satisfaction as well as the dynamics of academic support networks is crucial, especially in university settings where the stakes of decision-making and problem-solving are often high. Understanding these dynamics is not only of academic interest but also has practical implications for designing supportive networks, mentoring programs, and collaborative initiatives in universities.

While academic support networks have been explored in various contexts, there is a lack of studies focused on universities in Greek island settings. Given the crucial role of academic support in enhancing life satisfaction and recognizing this gap in the literature, this research aims to investigate the impact of academic support on life and academic satisfaction and explore the mechanisms of the support-seeking network involved at the University of the Aegean on Lesvos island by addressing the following questions:

- What is the relationship between perceived academic support and life satisfaction as well as academics satisfaction and academics within the university community?
- Do individual characteristics and similarities (homophily) influence support-seeking behavior among university students and staff?
- How is the experience of support-seeking within the university on Lesvos island, and how do these differences compare to support-seeking experiences on the mainland?

Ultimately, the goal is to inform university administrators and policymakers about the specific needs of island students. This can guide the development of targeted support programs to enhance academic support systems, improve graduation rates, and contribute to overall student well-being in geographically isolated university settings. By addressing this critical gap, the study will not only contribute to scholar understanding but also offer practical solutions to improve educational outcomes for students in remote areas.

1.3. Structure of thesis

This thesis is structured into five chapters. Chapter 1 is the introduction, outlining the problem statement, objectives, and research questions. Chapter 2 provides a review of the literature, empirical research, and the conceptual model. Chapter 3 describes the data collection process, questionnaire design, and analytical methodology. Chapter 4 presents the findings using descriptive statistics, data analysis, and an analysis of the research model results. The final chapter concludes the thesis by discussing policy implications for administrators and proposing future research directions aimed at addressing and overcoming current limitations.

CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL MODEL

2.1. The role of academic support

Academic support is a crucial aspect of higher education, including various services and strategies designed to assist not only students but also teachers and staffs. Academic support refers to the range of services to assist them in achieving their academic goals (Birch & Ladd, 1996; Chen, 2005). Academic support can come from various sources, including family members, peers, professors, and university staff (Danielsen et al., 2009; De Wit et al., 2010). This support may take various forms, such as emotional encouragement, academic guidance, tutoring, mentorship, and access to resources and facilities (Dillman & Zeisman-Pereyo, 2020; Grillo & Leist, 2013; Komarraju et al., 2010). Various sources of academic support can provide advice and assistance to students, each contributing uniquely to their educational success. For instance, family members often offer emotional support and motivation, essential for maintaining a positive outlook on academic challenges (Crawford & Johns, 2018). Peers can collaborate, share study materials, and foster a supportive learning environment that encourages discussion and mutual understanding (Chen &Yang, 2006; Oeste et al., 2014. Professors and teaching assistants offer guidance on academic and career paths (Crawford & Johns, 2018), and university staff assist with course selection and time management (Mikulecký, 2003). Psychologists are also crucial, offering mental health support and coping strategies, which are integral for maintaining well-being and academic performance (King, 2004; Hitge & Van Schalkwyk, 2017). The goal of academic assistance is to enhance students' learning experiences, improve retention rates, ensure academic success.

Several studies have examined and demonstrated the significant influences of academic support on life satisfaction as well as academic satisfaction. The popular methods being used are regression analysis and structural equation modeling:

- Akın et al. (2015) conducted a study to explore the relationship between academic support and life satisfaction among university students in Turkey. Using self-report instruments of 548 students and stepwise regression analysis, the researchers found that life satisfaction was positively predicted by esteem support, venting support, informational support, and motivational support. The study concluded that academic support is a crucial factor for understanding students' life satisfaction and overall well-being.
- Coffman and Gilligan (2002) surveyed 94 first-year college students in the United States to explore the relationships between social support, perceived stress, self-efficacy, and life satisfaction. Using regression analysis, the study found that higher levels of social support

and self-efficacy, along with lower perceived stress, were associated with higher life satisfaction (Coffman & Gilligan, 2002).

- Guess and McCane-Bowling (2016) conducted a study in the United States, using correlation and linear regression analyses to explore the relationship between perceived teacher support and overall life satisfaction among urban middle school students. The study showed that informational support from teachers was the most significant predictor of life satisfaction, highlighting the importance of teacher support in enhancing student well-being.
- Siddall et al. (2013) conducted a longitudinal study in the United States involving 597 middle school students who completed measures of school social climate and life satisfaction on two occasions, five months apart. Cross-sectional multiple regression analyses assessed the contributions of support from parents, peers, and teachers. The study found that family support for learning had a significant impact on life satisfaction over time, emphasizing the critical role of family-school interactions
- Akanni and Oduaran (2018) examined the mediating roles of academic self-efficacy and academic adjustment in the relationship between perceived social support and life satisfaction among Nigerian university freshmen using regression analysis. The study found that social support from family and faculty members significantly enhanced freshmen's academic adjustment and life satisfaction.
- Chen (2005) employed structural equation modelling to analyse the relationships between perceived support from parents, teachers, and peers, and adolescents' academic achievement in Hong Kong secondary school. The study found that the perceived support from all three sources was indirectly related to academic achievement through the mediation of perceived academic engagement. Both parental and teacher support had direct positive impacts on academic achievement, with teacher support contributing the most when considering both direct and indirect effects.
- Danielsen et al. (2009) also used structural equation modelling to investigate the impact of support from teachers, classmates, and parents on students' life satisfaction in Norway. The study found that teacher support had a strong correlation with school satisfaction, which was more strongly related to girls' life satisfaction than boys.
- Gutiérrez et al. (2017) analyzed data from 2,028 Angolan students aged 14 to 22, using factor analysis and structural equation modelling to examine the effects of perceived academic support and school engagement on satisfaction with school. The study highlighted the relevance of family and teacher support in enhancing school engagement and satisfaction

Not only does academic support affect academic and life satisfaction, but there is also an intertwined relationship between life satisfaction and academic success. Life satisfaction can significantly influence a student's academic performance, and conversely, academic achievements can enhance life satisfaction. When students receive adequate academic support, they are more likely to experience higher life satisfaction, which in turn can lead to better academic outcomes. Antaramian (2017) found that students with very high life satisfaction exhibited greater student engagement, academic self-efficacy, and approach-oriented achievement goals, along with lower academic stress. These students also achieved higher average grade compared to their less satisfied peers, highlighting the advantages of high life satisfaction for academic success. Similarly, Achkar et al. (2019) found that students with indicators of social support from family and community, and self-control skills, had higher life satisfaction, which contributed to better academic performance. Moreover, a supportive academic environment fosters a sense of belonging and well-being, further contributing to both academic success and overall life satisfaction (Owusu-Agyeman, 2021; Suhlmann et al., 2018).

2.2. Effect of individual characteristics and homophily on the academic support seeking behaviour

As mentioned above, literature has shown the critical role of support in academic settings, emphasizing that academic support is crucial for both personal development and overall academic satisfaction. However, to enhance the positive impact of such support systems, it is crucial to gain insights into the mechanisms and dynamics that shape support-seeking networks within academic communities. Support-seeking is a social process whereby individuals engage in the proactive search for guidance, information, or assistance to inform decision-making, solve problems, or navigate uncertainties (Hofmann et al. 2009; Yaniv, 2004). This behavior is fundamental to learning and problem-solving, as it allows individuals to access missing information, evaluate different perspectives, and make informed choices (Heath and Gonzalez 1995; Newman, 1994; Yaniv, 2004).

The support-seeking behavior of individuals is influenced by various factors, including individual characteristics and the phenomenon of homophily- the tendency for similar individuals to associate with each other, often summarized as the "birds of a feather flock together" mechanism (McPherson et al., 2001)—on the formation of support-seeking relationships within academic environments. Homophily is the tendency of individuals to associate and bond with similar others (McPherson et al., 2001). The principle is that similarity breeds connection, meaning people are more likely to form relationships with those who are similar to themselves in various attributes, such as beliefs, values, social status, and demographic factors (Block & Grund, 2014). This phenomenon is prevalent across

different types of social networks, both offline and online, influencing the formation and structure of social ties (Smirnov & Thurner, 2016). Homophily affects various dynamics within social networks, including the flow of information, the spread of behaviors, and the formation of social and cultural norms (Lambert & Griffiths, 2018). It can result in the formation of environments where like-minded opinions are reinforced, and contrary opinions are diminished, thereby influencing how individuals perceive diversity and consensus within a group (Adida et al., 2015). The principle of homophily has implications for understanding segregation, social cohesion, and the diffusion of innovations within communities (Golub & Jackson, 2008).

Numerous studies investigate the effects of homophily using various methods. Stochastic Actor-Oriented Models (SAOM) and Stochastic Agent-Based Modeling (SABM) are commonly used for analyzing longitudinal data, while Exponential Random Graph Models (ERGM) are popular for cross-sectional data analysis. SAOMs allow for the examination of changes in network ties alongside individual attribute changes, capturing the co-evolution of networks and behavior (Kalish, 2020; Zandberg & Huisman, 2019). This method is adept at identifying causal mechanisms within network dynamics, such as how individuals' tendencies to associate with similar others influence the overall structure of social networks (Snijders et al., 2006; Kossinets & Watts, 2006). SABM complements this approach by simulating the interactions of autonomous agents, each programmed with specific rules that govern their behavior in the social network (Garcia, 2005; Weng & Menczer, 2013). This method is particularly useful for exploring how complex social patterns emerge from simple rules of interaction and how these patterns are influenced by homophily (Macal & North, 2005; Will et al., 2020). ERGM, on the other hand, focuses on modeling the probability of network formation based on observed structural features and attributes, providing insights into the underlying processes that shape social networks and the role of homophily in these processes (Kim et al., 2016; Snijders et al., 2006).

Several important studies have employed SAOMs, SABMs and ERGMs to investigate the homophily effect within social networks and support-seeking behaviors, finding that people tend to seek support or advice primarily from those who share similar background characteristics, status, or personality traits.

Snijders et al. (2013) used SAOMs and multiplex network analysis to examine the dynamics of two-mode and one-mode networks, focusing on employment preferences, friendship networks, and advice-seeking behaviors in a large corporation. Their findings highlight that employees prefer seeking help from those within their employment spheres, revealing a significant overlap between professional ambitions and social engagement.

Brouwer and Fernandes (2023) used SAOMs to investigate how collaboration intentionality (CI), gender, and individual traits influence peer feedback networks in higher education. Their study reveals a homophily effect, where students prefer seeking feedback from peers with similar CI, and an influence effect, showing that feedback interactions can lead to increased similarity in CI over time.

Brouwer et al. (2018) applied SABM to study the formation of social and academic networks within Freshman Learning Communities (FLCs), discovering that students tend to form connections based on similar achievement levels. This pattern suggests that FLCs may unintentionally foster achievement segregation, benefiting higher achievers more and potentially increasing educational inequalities.

Lomi et al. (2011) used SABM to examine peer effects on academic performance. Their research demonstrates significant peer influence on academic performance and shows that students form ties based on similar academic achievements, highlighting the co-evolutionary relationship between network structures and academic outcomes.

Lee et al. (2019) applied ERGM to study social support networks in a Korean immigrant church, examining how status differentials and homophily based on age and gender influenced the formation of supportive ties. Their findings indicate that while higher socioeconomic status and official staff positions were central in informational support exchanges, gender and age homophily did not significantly influence the support network.

Kabirigi et al. (2022) used ERGMs to analyze the impact of geographic and social proximities on network formation and knowledge sharing. The findings indicated that geographic proximity significantly and positively influenced knowledge exchange within informal advice networks, although it was not crucial within the formal network. This significance was particularly noted in larger villages, suggesting that geographical distance plays a pivotal role in these contexts.

Hong (2023) used machine learning and ERGMs to examine how homophily in identity performance affects the formation of social ties. Results demonstrated that people tend to form friendships with others who exhibit similar gendered performances, beyond just binary gender categories. These findings validate theoretical insights and qualitative research on gendered performance, highlighting the importance of individual agency in network structures and its recognition in social network analysis and modeling.

Apart from the homophily effect, support-seeking behavior is also influenced by individual characteristics such as age, gender, and socioeconomic status. For instance, Heikensten and Isaksson

(2019) found that women tend to seek less advice than men, mainly due to differences in advice-seeking contexts and men's greater inclination towards verbal question advice. Additionally, the advisor's gender, does not affect the likelihood of seeking advice. Thus, although men seek advice more frequently than women, both genders are equally likely to consult advisors of any gender, showing no preference based on the advisor's or seeker's gender. However, research by Tong et al. (2014) suggests that women are more active information seekers than men. In the academic context, Bornschlegl et al. (2020) found that help-seeking behavior is influenced by gender, stigma, help-seeking experience, attitudes, and subjective norms. Similarly, Morgan and Robinson (2003) observed differences in help-seeking behavior based on gender, racial background, and student status.

2.3. Conceptual model

The conceptual model presented in this research builds on established theories and previous studies that explore the intersections of life and academic satisfaction. This model indicates that academic and social satisfaction significantly influence overall life satisfaction (Lent et al. 2007; Zalazar-Jaime et al.,2022. As mentioned above, academic support has been identified as a crucial determinant of both academic and life satisfaction, impacting these outcomes in both direct and indirect manners (Akın et al., 2015; Akanni & Oduaran, 2018).

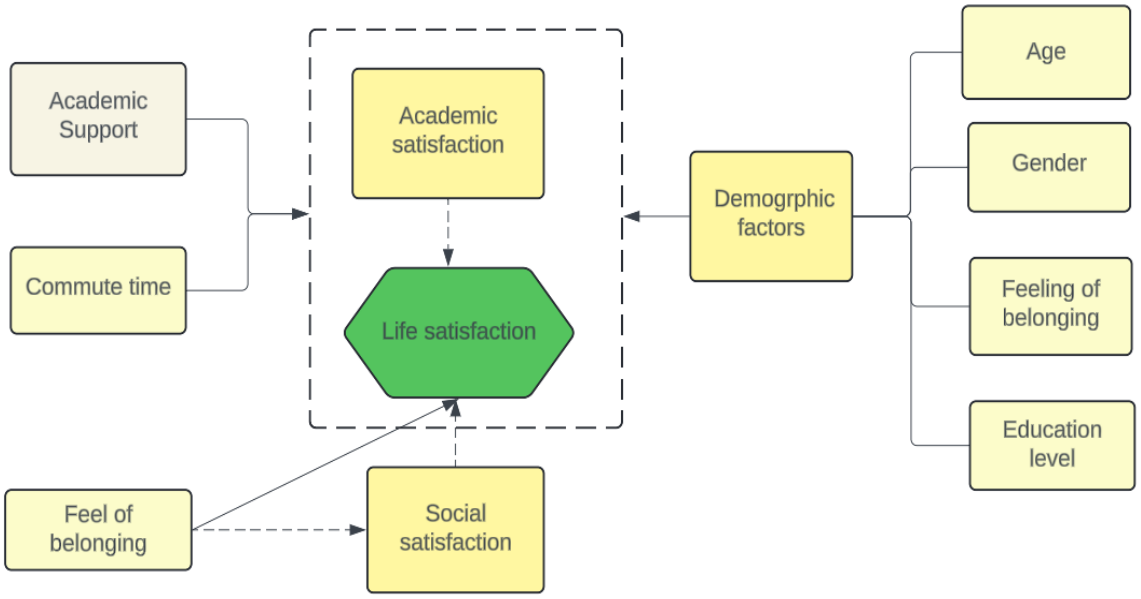

Figure 1: Conceptual model

Source: Adjusted from Zalazar-Jaime et al., 2022

Apart from academic support, this model incorporates commute time, feeling of belonging and various demographic factors such as age, gender, and education level, which have been recognized in literature as influencers of both academic and life satisfaction. For example, Fugl-Meyer et al. (2002) demonstrated that life satisfaction is generally independent of gender but positively correlated with age. Joshanloo & Jovanović (2019) observed higher life satisfaction among women. Ziogas et al. (2023) identified a negative impact of commute time on life satisfaction. Sivis-Cetinkaya (2013) reported that gender, academic achievement, social involvement, and financial status significantly affect subjective well-being. Krishen et al. (2020) found that female faculty members have significantly lower academic satisfaction across all ranks and institutions. Botha (2014) and Merlin et al. (2003) discovered a strong positive association between educational attainment and life satisfaction.

In conclusion, the conceptual model indicates the framework that both social satisfaction and academic satisfaction significantly impact life satisfaction. Furthermore, life satisfaction and academic satisfaction themselves are influenced by academic support and other variables incorporated into the framework, such as gender, age, education level, feelings of belonging, and commute time. This comprehensive model highlights the interconnected nature of these factors, emphasizing their collective influence on an individual's overall well-being.

CHAPTER 3: MATERIALS AND METHODS

3.1.Questionnaire and interview guide design

This research uses a mixed-method approach, including a survey and in-depth interviews.

Questionnaire: The questionnaire was designed to collect data on socio-demographic characteristics such as age, gender, education level, and department of study/work. Moreover, the questionnaire also included questions about opinions on support-seeking services and academic well-being in the university. Finally, respondents were asked to nominate individuals who have supported them in meeting academic goals, specifying their names, departments, genders, roles/relationships, types of support/advice provided, and frequency of contact (Appendix A).

Interview guide: The interview guide is semi-structured and serves as a follow-up interview for some respondents after the survey. The purpose is to further explore the information they provided in the survey, focusing on their social life on the island, their experiences seeking support at the university, and how these experiences may differ from those on the mainland, if applicable (Appendix B).

3.2. Data collection

In this study, mixed methods are used to collect data, including secondary data collection, in-depth interviews, and primary data collection through surveys.

Secondary data was taken from relevant materials from various sources such as reports, scientific studies, books, and related documents from the Internet.

Primary survey data was collected both online and via physical distribution. The online questionnaire was designed using Qualtrics software and was available in both Greek and English. It was distributed through university email to students, friends, acquaintances, professors, and university staff.

For physical survey data collection, I approached random students and distributed either a paper questionnaire or a QR code. Additionally, I visited four master’s classes to distribute the paper questionnaire. A total of 195 responses were initially collected. However, after cleaning the data for significant missing information, the number of complete responses was reduced to 160.

In-depth interviews were conducted with 10 participants, selected based on their education level and department. The participants included 2 bachelor's students, 3 master’s students, 2 PhD candidates, 2 postdoctoral researchers, and 1 associate professor from four different departments of the university: Geography, Sociology, Marine Sciences, and Cultural Technology and Communication. The gender distribution among the interviewees was 7 males and 3 females. The interview interviews were recorded and later transcribed by Otter software.

Before the interviews, participants were informed about the purpose of the study and their rights as participants. A consent form was provided, detailing how their data would be used, ensuring confidentiality, and explaining that personal information such as names and specific contextual details that could reveal their identities would not be shown in the report. Participants were required to sign the consent form (Appendix C) to confirm their understanding and agreement to participate under these conditions.

3.3. Data management and ethics

In the survey data collection, names and department affiliations will be gathered to identify actors in network analysis. However, personal data such as names, age, and gender will not be disclosed in the report. The modeling method will aggregate data, ensuring no individual data is shown.

For qualitative interviews, pseudonyms will be used, and real names will not appear in the report. Additionally, any context that might reveal a participant's identity will be removed from quotes to protect confidentiality.

All data will be securely stored on a password-protected personal laptop to ensure information protection. The data will be retained for a maximum of 2 years, after which it will be permanently deleted. Raw data will not be disclosed to any third parties. The final report will be submitted to the University of the Aegean and the University of Groningen as a master's thesis. The data usage is strictly limited to scientific research purposes (additional details on the research data management plan can be found in Appendix D).

3.4. Data analysis

The quantitative data is prepared and analyzed using Excel and R.

Qualitative data is transcribed in Otter software and then summarized and grouped into themes.

3.4.1. Quantitative data analysis

3.4.1.1.Factor analysis and multivariate regression modelling

Firstly, factor analysis (FA) and multivariate models are used to examine the effect of academic support, along with other factors, on satisfaction in life as well as in academics. FA will uncover the underlying dimensions or latent factors within the data, reduce and categorize variables, and identify patterns of relationships among them. Moreover, the use of FA and multivariate regression models will be instrumental in exploring the array of factors, including academic support, that influence the life and academic satisfaction of individuals in university. Below are the regression models will be used in this research, table 1 explains the dependent and independent variables.

Model 1: $\mathbf{Ln(LS_i) = \alpha + \beta\ SS + \theta\ RTA + \delta AW + \sigma BELONG + \mu COMMUTE + \lambda_i Z_i + \varepsilon}$

Model 2: $\mathbf{Ln(AS_i) = \alpha + \beta\ SS + \theta\ RTA + \delta\ AW + \sigma BELONG + \mu COMMUTE + \lambda_i Z_i + \varepsilon}$

Z_i include socio-economic variables such as Education level and Gender

Table 1: Explanation of variables in multivariate model

Dependent variables	
Life satisfaction	How satisfied or dissatisfied with life overall (1-10)
Academic satisfaction	How satisfied with academic life/ academic career (1-10)
Independent Variables	
ASS	Average composite index on academic support satisfaction (between 1 to 5)
RTA	Average composite index on Resource Trust and Availability (between 1 to 5)
AWB	Average composite index on Academic Well-being (between 1 to 5)
BELONG	Feeling of belonging of any group on island (0: No; 1: Yes)
COMMUTE	Time to travel from home to university (minutes)
EDU	Education/Position level of the respondent (6 levels: 1 =bachelor to 6: Professor)
GENDER	Gender of the respondent (0=male; 1=female)

The dependent variables for the two models in this study are life satisfaction (LS) and academic satisfaction (AS), respectively, which are represented as the logarithm of a scale from 1 to 10 (1 is very dissatisfied and 10 is very satisfied). Despite the limitation of true metric properties, scales from 1 to 10 are commonly used in literature to measure satisfaction due to their simplicity and ease of interpretation. A lot of research has used this scale to measure satisfaction in various domains such as overall life satisfaction (Nauta, 2007; Nguyen et al., 2022; Seligson et al., 2005)), education (Bayrak et al., 2020), and clinical settings (Corah et al., 1984; Hawthorne et al., 2014; Meakin & Weinman, 2002), etc.

Three variables, ASS (Academic Support Satisfaction), RTA (Resource Trust and Availability), and AWB (Academic Wellbeing), are derived from factor analysis by grouping related statements (see Table 2). Detailed information about the process will be provided in Chapter 4. These statements indicate respondents' opinions on well-being and support networks within the university (from 1 =

Strongly disagree to 5= Strongly agree). Each of these three composite variables is constructed by aggregating several statements in the table. The mean score of their component statements is calculated to derive the composite variable's score. For statements 4, 10 and 11, the scale will be reversed due to their negative phrasing but statement 4 will be excluded after the factor analysis.

Table 2: Summary of statements regarding well-being and support in university

No.	Statement	Scale
1	I am satisfied with my academic performance	1-5
2	I feel optimistic about my future career prospects.	1-5
3	I have a healthy balance between my academic work and personal life.	1-5
4	I often feel stressed about my academic work.	1-5
5	I have access to adequate mental health and well-being resources at my university.	1-5
6	The university provides adequate resources for supporting students.	1-5
7	I feel comfortable seeking advice/support from others within the university.	1-5
8	The advice/support I receive from others within the university is helpful.	1-5
9	I am satisfied with the support/advice I receive from others in the university	1-5
10	I cannot seek advice/support due to a lack of trust in the university's support systems (reversed).	1-5
11	I prefer to seek advice/support from other settings (e.g., online forums, external networks) than from the university (reversed)	1-5

Other independent variables are chosen based on literature review on similar research as mentioned in the conceptual model.

3.4.1.2.Exponential Random Graph Models (ERGM)

This research use ERGM to identify the mechanisms and dynamics of support network formation in universities. ERGMs is a tie-based approach describing the probability of observing a particular network configuration, incorporating structural features and corresponding parameters.

The dependent variable in an ERGM model is the likelihood of a tie or edge existing within the network. This dependent variable is modeled in terms of the log odds of an edge being present, making ERGMs a type of logistic regression tailored for network data. Independent variables in ERGMs can be both endogenous and exogenous. Exogenous effects occur outside the outcome network that influences the formation of ties in a network, such as demographic attributes like age

or socioeconomic status. Endogenous effects arise from within the outcome network, indicating internal dependencies and structural patterns among the ties (Cranmer et al., 2011)

$$P(Y = y) = \left(\frac{1}{c}\right) \exp\{\theta L(y) + \sigma_k S_k(y) + \ldots + \tau T(y)\}$$

P(Y=y): the probability of observing a particular network configuration.
1/c: normalizing constant ensuring the probability of observing the network is between 0 and 1.
L(y), S_k(y),T(y): network statistics, such as the number of edges, endogenous and exogenous effects.
θ, σ, τ: the estimated coefficient associated with the network statistic L(y),S_k(y), T(y).

The effects (independent variables) included in the ERGMs in this research include network-level controls (edges), proximity dimensions, network structural effects and individual-level controls. Table 3 shows the effects and their explanations. In the second model, the effect of proximity on academic satisfaction is added to examine whether people with similar levels of academic satisfaction are more likely to form ties, thereby assessing the influence of academic satisfaction similarity on network formation.

Table 3: Effects included in ERGMs

Effect/Variable	**Explanation**
Network-Level Control (Edge)	Controls for the overall density of the network by accounting for the propensity of nodes to form ties.
Proximity Dimensions	
• Same Department	Captures the increased likelihood of tie formation between nodes within the same department.
• Same Gender	Measures the tendency for nodes of the same gender to form ties.
• Age Difference	Examines the influence of age difference on tie formation.
• Similar Academic Satisfaction	Included only in Model 2 to examine if nodes with similar levels of academic satisfaction are more likely to form ties
Individual-Level Controls	
• Gender (female)	Assesses whether female nodes are more likely to form ties.
• Education	Accounts for the influence of educational attainment on tie formation.
Network Structural Effects	

• Closed Triads (Transitivity)	Reflects the tendency for network closure, where the presence of a mutual third node increases the likelihood of forming a tie.
• Open Triads	Measures the tendency to avoid open triangles.

3.4.2. Qualitative analysis

After data are transcribed using Otter, the qualitative analysis of 10 interviews on social networking and academic support in universities involves coding and theme development. Each interview transcript undergoes careful scrutiny to extract meaningful segments, which are then coded to identify recurring patterns and insights. Subsequently, the analysis explores relationships between these themes by examining variations or similarities across participants, aiming to uncover the implications of these findings. This iterative process allows for a deeper understanding of the personal experience on social network, academic support as well as how the academic support network on island is different compared to mainland.

CHAPTER 4: RESEARCH RESULTS AND DISCUSSIONS

4.1. Socio-demographic characteristics of respondents

A survey was conducted from April to June 2024 with a total of 160 complete responses. Table 4 illustrates the socio-demographic profile of the respondents. Gender distribution is quite even with 45% male and 55% female participants. The average age is 28 years, with the largest age group being 24-35 years (48.4%), followed by 18-23 years (33.8%).

Most respondents (83.1%) live in Mytilene, and the duration of their stay on Lesvos varies, with 36.9% having lived there for more than 3 years, 19.7% for less than 3 months, 17.8% for 6-12 months, 15.9% for 1-3 years, and 9.6% for 3-6 months. In terms of their status, 65.4% are exchange students or visiting scholars, while 34.6% are local students/staffs.

Table 1: Socio-demographic characteristics of the respondents

Characteristic	**%**	**Characteristic**	**%**
Gender		**Location**	
• Male	45	• Mytilene	83.1
• Female	55	• Other	16.9
Age (mean=28)		**Time living on Lesvos**	
• 18-23 years	33.8	• <3 months	19.7
• 24-35 years	48.4	• 3-6 months	9.6
• 36-45 years	9.6	• 6-12 months	17.8
• >46 years	8.3	• 1-3 years	15.9
Department		• >3 years	36.9
• Environmental	28.7	**Education level**	
• Anthropology and History	12.7	• Bachelor	31.2
• Geography	30.6	• Master	52.9
• Sociology	15.9	• Above PhD	16.9
• Marine Sciences	2.5	**Student/working status**	
• Cultural Technology and Communication	9.6	• Local • Exchange	65.4 34.6

The majority of respondents hold a Master's degree (52.9%), while 31.2% have a Bachelor's degree, and 16.9% have education above PhD level. Figure 2 shows more detail about the education distribution among respondents. Among the departments, Geography has the highest number of participants at 30.6%, followed by Environmental studies at 28.7%, Sociology at 15.9%, Anthropology and History at 12.7%, Cultural Technology and Communication at 9.6%, and Marine Sciences at 2.5%. Figure 2 shows the gender distribution in each department.

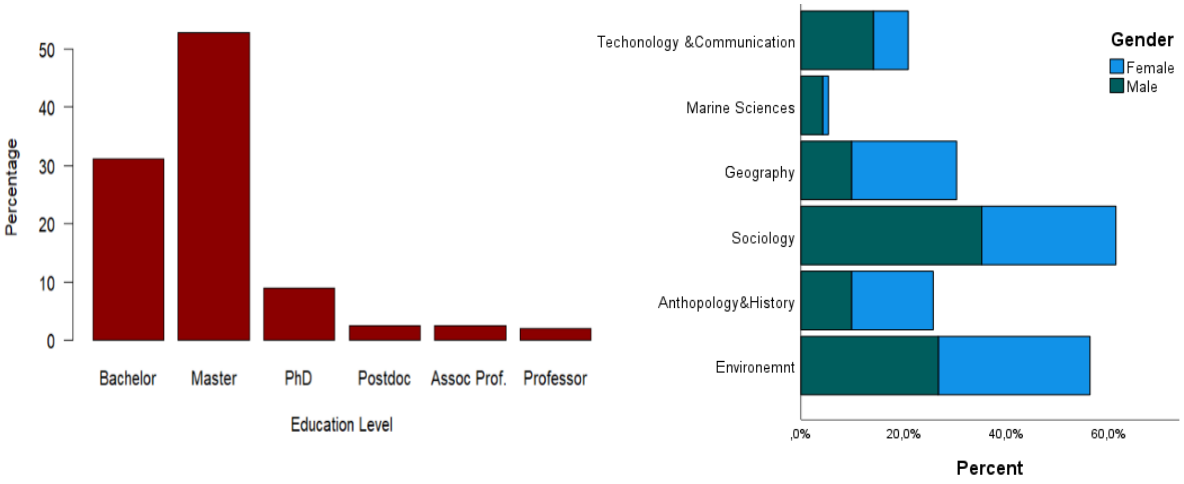

Figure 2: Education levels and gender distribution in each department of the respondents

4.2. Satisfaction in life, education and social network among respondents

Satisfaction levels across life, academic, and social network domains are measured on a scale from 1 to 10 with the mean value are 7.4; 7 and 7.2, respectively. Life satisfaction has the highest median (8), closely followed by academic and social network satisfaction, both with medians of 7. Academic satisfaction, however, has a narrower interquartile range (6 to 8) compared to social network satisfaction (6 to 9), suggesting less variability in academic satisfaction. The boxplot in figure 3 reveals that social network satisfaction has a wider spread and more outliers, suggesting more extreme values in how individuals perceive their social interactions compared to other aspects.

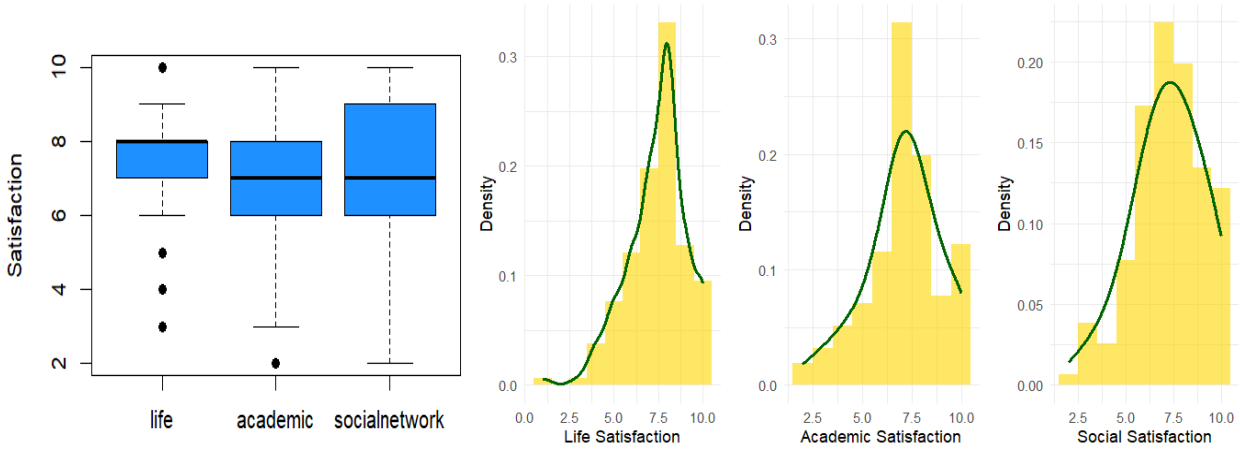

Figure 3: Distribution of Life Satisfaction, Academic satisfaction and social network satisfaction among respondents

All the three density plots for life, academic, and social satisfaction in figure 3 exhibit left-skewed distributions, indicating that a majority of respondents report high levels of satisfaction across these domains. Life satisfaction shows the highest peak around a score of 7.5, suggesting that respondents are generally very satisfied with their life. Academic satisfaction also leans towards higher ratings but peaks slightly lower, around a score of 7, indicating a somewhat lesser degree of satisfaction compared to life satisfaction. Social satisfaction, while still skewed left, shows the most pronounced left skew of the three with the peak at around score of 7.

4.4. Relationship of academic support and satisfaction of life and academic through regression modelling

4.4.1. Factor analysis

Factor analysis is conducted to check the reliability and validity of the measurements used in the paper. It is employed to remove items that exhibit low factor loadings or load on multiple constructs, as well as those with unreliable associations. By employing this method, the study aims to enhance the reliability and validity of the measurement under investigation (Ferguson & Cox, 1993). Firstly, the Kaiser-Meyer-Olkin (KMO) index and Bartlett's test of sphericity were conducted. The KMO index yielded a value of 0.78, indicating that the sample size was adequate. Additionally, the significant result of Bartlett's test ($p < 0.001$) confirmed the presence of at least an intercorrelation among the variables (Appendix E). The final selection of items included in the considers only those with an eigenvalue greater than 1 (Appendix E) and factor loadings of 0.5 or higher.

The FA results, presented in Table 5, indicate that item "I often feel stressed about my academic work" is excluded from the analysis due to their factor loadings below 0.5. The factor SS(Support

Satisfaction) include 3 statements, RTA (Resource Trust and Availability) includes 4 statements and AW (Academic Wellbeing) includes 3 statements.

Finally, the reliability of the new factor was assessed using Cronbach's alpha. Factor 1 and factor 2 have Cronbach's alpha of 0.7 and 0.8, indicating good internal consistency of the factor. Factor 3 has value of 0.5, which is not ideal but still acceptable in reliability analysis (Appendix E).

Table 5: Factor loading of measurements

Code	Statements	Component 1	Component 2	Component 3
ASS1	I feel comfortable seeking advice/support from others within the university.	0.894		
ASS2	The advice/support I receive from others within the university is helpful.	0.741		
ASS3	I am satisfied with the support/advice I receive from others in the university	0.726		
RTA1	I have access to adequate mental health and well-being resources at my university.		0.777	
RTA2	The university provides adequate resources for supporting students.		0.713	
RTA3	I cannot seek advice/support due to a lack of trust in the university's support systems (reversed).		0.583	
RTA4	I prefer to seek advice/support from other settings (e.g., online forums, external networks) than from the university (reversed)		0.542	
AWB1	I am satisfied with my academic performance			0.734
AWB2	I feel optimistic about my future career prospects			0.697
AWB3	I have a healthy balance between my academic work and personal life.			0.531

4.4.2. Multivariate regression modelling

The results of two regression models are shown in Table 6. The dependent variable in Model 1 is ln(life satisfaction) and in Model 2 is ln(academic satisfaction)

Table 6: Regression model results

	Model 1 (Y=lnLS)		Model 2 (Y=lnAS)	
	Coefficient	**SE**	**Coefficient**	**SE**
(Intercept)	**1.36 *** **	**0.18**	**0.38 ***	**0.18**
GENDER	**-0.07**	**0.05**	**0.02**	**0.05**
LEVEL	**0.01**	**0.02**	**0.03**	**0.02**
BELONG	**0.10 ***	**0.05**	**0.04**	**0.05**
COMMUTE	**-0.00 ***	**0.00**	**0.00**	**0.00**
ACA_SUP_SATIS	**-0.04**	**0.04**	**0.06 .**	**0.04**
RES_TRUST_AVAIL	**0.13 *** **	**0.04**	**0.05**	**0.04**
ACA_WBEING	**0.10 ***	**0.04**	**0.26 *** **	**0.04**
R^2	**0.23**		**0.42**	
Adj. R^2	**0.19**		**0.39**	

***** : p < 0.001; ** : p < 0.01; * : p < 0.05, . : p < 0.1**

Testing for multicollinearity, goodness of fit

The initial model also include age, but it is removed because of the high correlation with education level and make variance inflation factor (VIF) exceed the threshold. After removing age, there is no high correlation between independent variable, VIF test shows that all VIFs in the model are smaller than 2 (Appendix F). Therefore, we can conclude that multicollinearity is not a problem in these models. The ANOVA tests ($p<0.000$) show that the model fit the data better than the null models.

Analysis of the coefficients

- *GENDER and EDUCATION*

In both models, gender and education level are not significant, and therefore, in the context of this research, they do not significantly affect life and academic satisfaction. This suggests that other factors, play a more crucial role in influencing these outcomes.

• *Sense of belonging (BELONG)*

The variable BELONG indicates whether the respondent feels a sense of belonging to any group on the island. It has a positive and statistically significant effect on life satisfaction, which is an expected finding. Feeling part of a community or group can foster a sense of identity, support, and fulfillment, contributing to overall life satisfaction. However, sense of belonging does not have a statistically significant effect on academic satisfaction. This suggests that being part of a group may not directly impact an individual's satisfaction with their academic performance or experiences. However, it does not necessarily mean that a sense of belonging is irrelevant to academic pursuits. It is possible that a sense of belonging could indirectly influence academic satisfaction by providing emotional stability and motivation, which could positively impact academic performance and satisfaction in the long run.

• *Commute time from to university (COMMUTE)*

Commute time between home to university has a significant negative effect on life satisfaction but an insignificant effect on academic satisfaction. The significant negative effect of commute time on life satisfaction is understandable. Longer commutes can be physically and mentally draining, reducing the time available for leisure, social activities, and personal pursuits, contributing to stress, fatigue, and a poor work-life balance, all of which can negatively impact overall life satisfaction. On the other hand, the insignificant effect of commute time on academic suggests that the length of the commute may not directly influence an individual's academic satisfaction. Academic satisfaction is likely influenced more by factors directly related to the academic environment. However, it's essential to consider the potential indirect effects of commute time on academic satisfaction.

• *Academic support satisfaction (ACA_SUP_SATIS)*

This component is an aggregate measure of three variables related to perceived satisfaction with academic support in the university (how satisfied with the support, how helpful the support, and how comfortable to ask for support). This component shows an insignificant effect on life satisfaction but a significant positive effect on academic satisfaction (at the 10% significance level). This indicates that while satisfaction with academic support does not directly enhance overall life satisfaction, it plays a crucial role in improving students' satisfaction with their academic experiences. This finding aligns with expectations, as adequate academic support can enhance the overall academic experience and contribute to academic satisfaction. The positive impact of academic support highlights the importance of universities providing effective support systems and resources for their students. While academic support may indirectly contribute to life satisfaction, it is not a direct determinant, as life satisfaction is influenced by various personal, social, and

environmental factors. However, as mentioned in the literature review, academic satisfaction is important in overall life satisfaction, so the positive effect of ACA_SUP_SATIS on academic satisfaction could potentially have an indirect positive influence on life satisfaction as well.

- Resource trust and availability (RES_TRUST_AVAIL)

This component aggregates from 4 factors regrading access to mental health and well-being resources, adequate university support, trust in university support systems, and preference for support. The significant positive effect on life satisfaction suggests that having access to trustworthy and adequate resources enhances overall well-being and life satisfaction. When students perceive that the university provides adequate resources for mental health, well-being, and general support, and when they trust the university's support systems, they are more likely to feel satisfied with their overall life. This aligns with the understanding that universities have a responsibility to support students holistically, beyond just academic pursuits. However, the lack of a significant effect on academic satisfaction indicates that while these resources contribute to general life satisfaction, they do not directly influence how satisfied students are with their academic experiences. This implies that academic satisfaction may be more closely related to specific academic factors rather than the availability and trust in general university resources.

- Academic well being (AWB)

Academic Well-being component is an aggregate composite variable related to academic performance, career prospects, and balance between academic work and personal life. This component has a significant effect on life satisfaction but is not significant for academic satisfaction. This finding is expected since satisfaction with academic performance, optimism about future career prospects, and a healthy work-life balance are all factors that can contribute to an individual's overall sense of well-being and life satisfaction. When students feel positive about their academic achievements, have a hopeful outlook for their future careers, and maintain a balanced lifestyle, it can lead to a greater sense of fulfillment and contentment with life in general.

However, the insignificant effect of this variable on academic satisfaction is noteworthy. It might be expected that satisfaction with academic performance and a healthy work-life balance would directly influence academic satisfaction. However, the findings suggest that these factors may not be the primary determinants of how satisfied students are with their academic experiences and outcomes. Again, while academic wellbeing variable may not have a significant direct effect, there could be indirect influences on academic satisfaction.

In conclusion, the findings from the regression models contribute to answering the first research question on the relationship between academic support and life satisfaction. The results show that satisfaction with academic support positively affects academic satisfaction, while trust in and availability of academic support have a direct positive effect on life satisfaction. Due to the intertwined relationship between life satisfaction and academic satisfaction, we can infer that these two factors related to academic support have both direct and indirect effects, making them important for both life and academic satisfaction.

4.5. Analysis of support network

4.5.1. Network descriptive statistics

Figure 4 depicts the academic support network within a university. Participants nominated individuals who have assisted them in achieving their academic goals, specifying the name, role, type of support, and frequency of contact. In this network visualization, the edge width represents the frequency of contact, with wider edges indicating more frequent interactions. The size of the nodes signifies the outdegree, where larger nodes represent individuals who are frequently approached for support. The colors of the nodes correspond to 6 departments of the Aegean university: Department of the Environment, Department of Social Anthropology and History, Department of Geography, the Department of Sociology, Department of Marine Sciences, and Department of Cultural Technology and Communication. White nodes represent individuals outside the university. This network consists of 333 nodes and 351 edges.

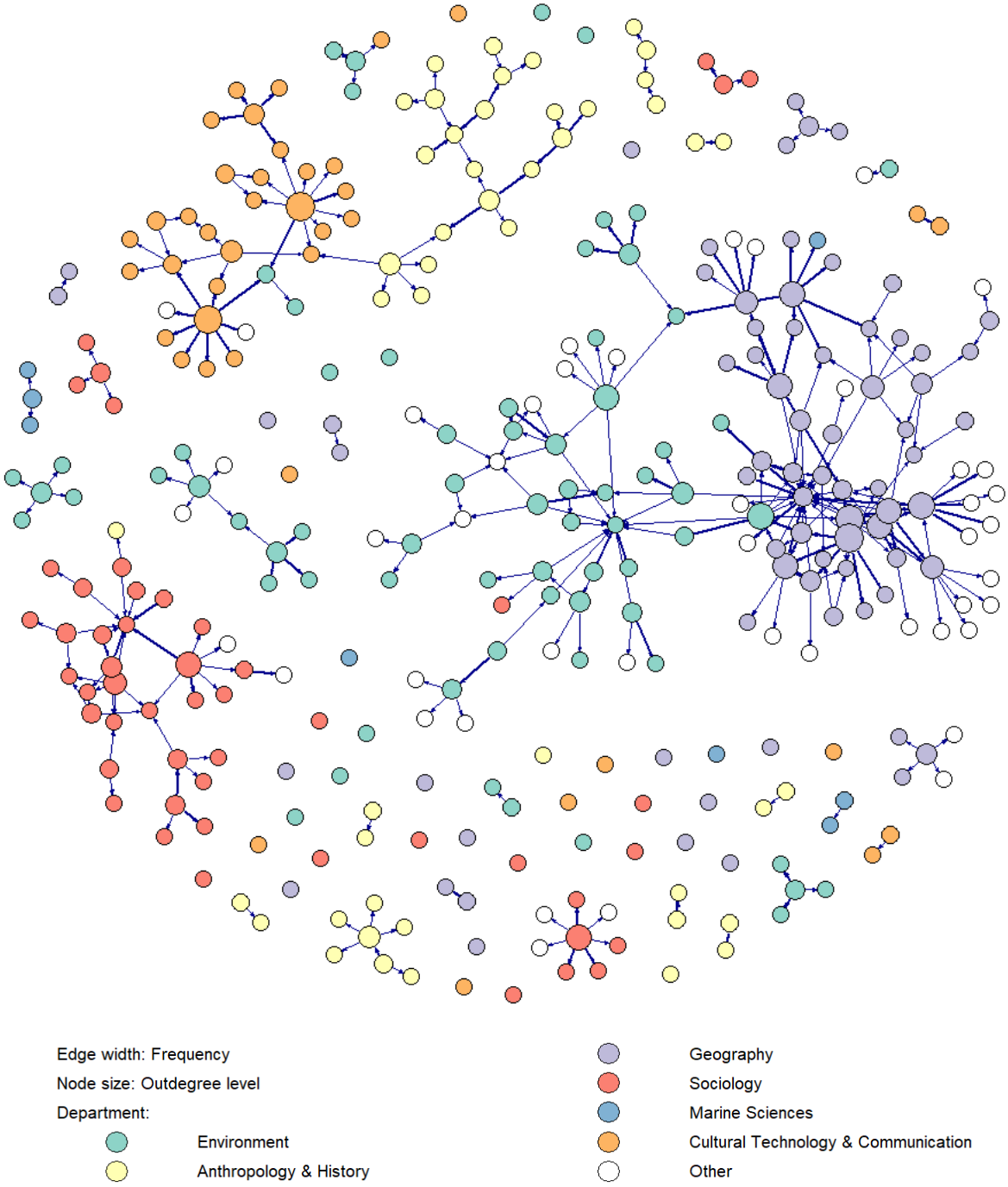

Figure 4: Whole support network in the university

Figure 5 indicates the network only contains individuals within the university, with the white nodes representing external individuals removed. The size of the nodes now reflects the indegree level, meaning that individuals with larger nodes received a lot of requests for support. This network has 288 nodes and 299 edges. The degree centrality, betweenness centrality and eigenvector centrality distribution of this network is show in appendix G. At first glance, it is evident that people tend to seek academic support from peers within their own department, forming distinct clusters of similarly

colored nodes. Additionally, some nodes act as key connectors within and between departments, indicating their significant role in the academic support network. Notable connectors include node 38 in the Department of the Environment, node 114 in the Department of Geography, and node 237 in the Department of Sociology, who were frequently nominated as sources of academic support.

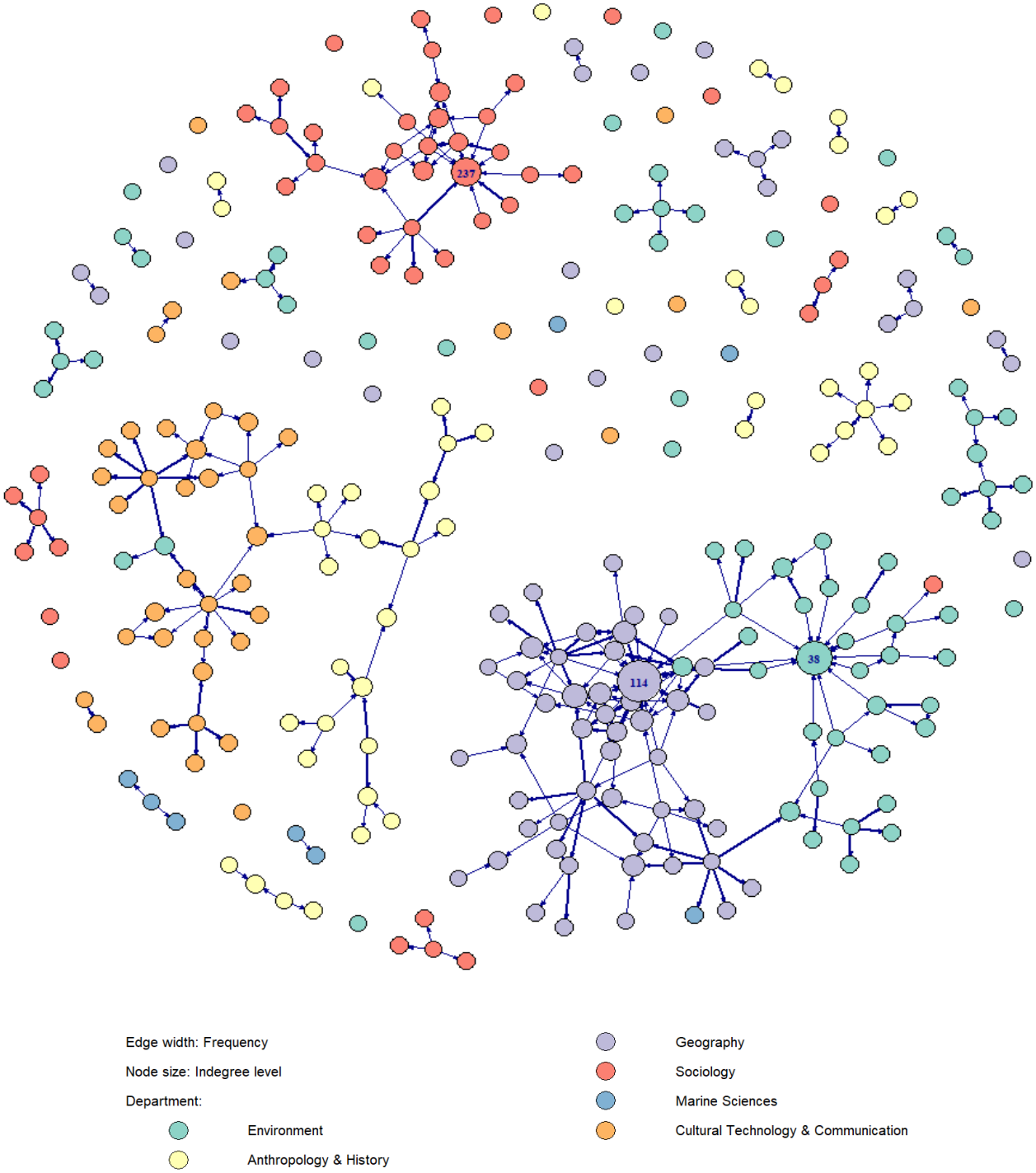

Figure 5: Support network within the university

4.5.2. Role, type and frequency of academic support

Table 7 shows the characteristics of support connections (ties) between individuals in the university. The most popular relationships in the support network are the Mentor relationship (Professor) and the Peer relationship (classmates/friends/colleagues), with 42.5% of tie formations involving professors and 43.1% involving peers. For a specific tie, an individual can receive multiple types of advice. Table 6 indicates that the majority of edges are characterized by 1 and 2 types of advice, comprising 45.8% and 24.7% respectively.

Regarding the frequency of contact for academic support, there is minimal variation, ranging uniformly from 17% to 24%. The most popular frequency of contact is once a week, accounting for 24.2% of edges.

In terms of types of support provided, the most popular types are course-related advice at 24.6%, personal advice at 21.9%, and research advice at 20.3%.

Table 7: Edge descriptive statistics

Characteristic	%	Characteristic	%
Role/Relation		**Frequency**	
• Professor	42.5	• Almost every day	17.2
• Administration staff	8.7	• 2-3 times a week	20.4
• Classmate/Friends/Colleagues	43.1	• About once a week	24.1
• Psychologist	1	• 1-2 times a month	20.8
• Others	4.7	• Less than once a month / Rarely	17.5
Number of total support/advice types		**Type**	
• 1 type	35.8	• Course-related support	24.6
• 2 type	24.7	• Study strategies and techniques	17.6
• 3 type	19.1	• Thesis/research project guidance	20.3
• 4 type	8.4	• Career advice (internship, job…)	13.1
• 5 type	10	• Personal support	21.9
• 6 type	2	• Other	2.5

Table 8 reveals that peer relationships constitute the strongest and most frequent contact for support, as well as the most diversified types of academic support, indicated by the highest mean level of

contact frequency and mean number of support types. This indicates not only the intensity but also the diversity in the support-seeking network between peers. Individuals can seek support from their peers more often and for many different problems. These results carry very important implications for the university in enhancing and facilitating strong peer relations.

The second most significant relationship highlighted is the relationship with professors. This ranks second only to peer relationships in terms of intensity of contact as well as diversity of support sought. Notably, psychological support ties account for merely 1% of interactions and exhibit relatively low frequency of contact. This could potentially be explained by students being hesitant to discuss personal/mental health matters with faculty or a lack of awareness about counseling resources available.

Table 8: Means score of contact frequency and number of support types by relationship

Role/Relation	Frequency	Mean Total Advice Types
Professor	2.7	2.4
Administration staff	1.9	1.5
Peers(classmate, colleague, friends)	3.5	2.5
Psychologist	2.3	1.7
Other	2.7	1.6

4.5.3. Results from Exponential Random Graph Model

Results of ERGMs

The results from ERGMs are displayed in Table 8, which presents two models network-level controls (edges), proximity dimensions, network structural effects and individual-level controls. The effect of proximity on academic satisfaction is added into the model 2.

Table 9: Finding from ERGMs for support-seeking network.

Variable	Model 1 Coeff (SE)	Model 2 Coeff (SE)
Edges	-6.55 (0.60) ***	-6.25 (0.64) ***
Closed triads (gwesp_transitivity)	1.61 (0.15) ***	1.59 (0.15) ***
Open triads (gwdsp)	-0.52 (0.07) ***	-0.53 (0.07) ***
Gender(female)	0.20 (0.10) *	0.22 (0.10)*
Education (master)	0.63 (0.27) *	0.54 (0.27) *
Education (PhD)	0.79 (0.34) *	0.71 (0.34) *
Education (Postdoc)	0.77 (0.35) *	0.75 (0.34) *
Education (A. Prof)	0.79 (0.38) *	0.74 (0.37) *
Education (Prof)	2.56 (0.45) ***	2.52 (0.44) ***
Same Department	2.55 (0.31) ***	2.55 (0.31) ***
Same gender	0.59 (0.15) ***	0.58 (0.15) ***
Age difference	-0.03 (0.01) *	-0.03 (0.01) *
Similar academic satisfaction		-0.09 (0.08)
AIC	779.47	800.20
BIC	878.61	884.88
Log Likelihood	-387.74	-386.58

Table 9 shows that model 1 generally performs slightly better than Model 2 based on the AIC, BIC, and log likelihood values. The differences in AIC and BIC between the two models are relatively small but still suggest a preference for Model 1 in terms of goodness of fit and model simplicity. However, both ERGMs show similar results with all the significant effects are, therefore, we can use both model to analyse the results.

- Edge: The negative significant coefficient of edge suggests that network structure tends to have fewer edges than expected by chance, which might indicate a tendency towards more selective or focused support networks.
- Close triad (transitivity): The positive significant coefficient for "Closed Triads" indicates that the presence of closed triads significantly influences the network structure by promoting clustering and cohesion. It refers to a situation where three individuals are interconnected through advice or support relationships in such a way that each person seeks advice or support from the other two within the

triad. This structured network enhances collaboration, knowledge sharing, and professional development within the group.

- Open triad: This negative significant coefficient suggests a preference against open triads, implying a tendency towards complete triadic closure in the network, against the formation of open configurations. In this case, indicate that students and staff tend to form interconnected groups where support is consistently sought and provided among members of group.
- Gender(female): These coefficients are positive significant, indicating that gender (specifically being female) has a positive association with forming connections in the support network. In other words, females tend to have slightly higher odds of being involved in the support network compared to males.
- Education: Each positive coefficient for education levels (e.g., master's, PhD, Postdoc, Assistant Professor, Professor) indicates that individuals with these higher levels of education are more more active in seeking or providing support within the university community compared to those with a bachelor's degree. It can be explained that individuals with advanced degrees (PhD, postdoc, Professors) often possess specialized knowledge and expertise, making them valuable resources for advice, support, guidance, or collaboration within academic circles.
- Same Department: the positive significant coefficient for ‘Same department’ indicates a natural tendency within universities for individuals to seek support from peers or teachers with whom they share academic affiliations, interests, and pre-existing relationships(classmate, teacher, etc) . This preference not only facilitates effective knowledge exchange and collaboration but also fosters a supportive academic environment conducive to personal and professional growth.
- Same Gender: A positive significant coefficient of ‘Same gender’ indicates a tendency within university settings for individuals to seek support from peers or collegues of the same gender. For teacher-student relationship, this homophily is less important than peer relationship. This preference is indicative of homophily based on gender, where individuals are more inclined to engage in supportive interactions with others who share similar gender identities. This phenomenon fosters a sense of understanding among peers, as shared experiences and perspectives can facilitate more meaningful exchanges of advice, mentorship, and collaboration. In academia, this intra-gender support network not only enhances the exchange of academic knowledge but also cultivates a supportive environment that supports personal and professional development
- Age difference: A negative significant coefficient for 'Age Difference' indicates that within university settings, individuals tend to seek support primarily from peers who are closer in age. This trend is less pronounced in mentorship relationships within the university, as most peer connections tend to be among individuals of similar age, whereas teacher-student relationships typically involve

individuals of different age groups. This suggests a preference for seeking advice and guidance from individuals who are closer in age, possibly due to shared generational experiences and relatability. In academic environments, this preference for homophily based on age may reflect a desire for peer support networks where individuals feel more understood and can relate to each other's academic challenges and experience.

- Similar academic satisfaction: A non-significant coefficient for 'Similar academic satisfaction' indicates that the similarity in academic satisfaction levels between individuals does not significantly influence their likelihood to seek support from each other. This suggests that while academic satisfaction is an important factor in individual experiences, it does not play a significant role in shaping support-seeking behaviors within academic networks. Other factors such as departmental affiliation, age proximity, and gender may have a more pronounced impact on the formation of support networks among university members.

Goodness of fit and degeneracy

Based on the Goodness of fit graphs (Appendix H), both models show the fit of data. The observed values (blackline) are within the box simulated ranges, means that models are able to reproduce the key features and statistics of the network.

The Markov chain Monte Carlo (MCMC) diagnostics graphs (Appendix H) show that model degeneracy is not a real problem in these models. The trace of edges fluctuate around the horizontal lines and it looks dense (trace plots look like “fat, hairy catepillar”) and density of edges is more or less normally distributed. It means the MCMC is working well in these case and model degeneracy is not an issue here.

4.6. Analysis of support network experience and well-being of respondents

Academic support experience

The academic environment on the island university is characterized by its informal nature and the ease of access to faculty, which contrasts with the experiences students had on the mainland. As mentioned by Spyros: “The facilities were good there [mainland], but it was a faceless environment. You didn't really know anyone apart from your friends. We didn't have any connection with professors and staff.” Moreover, the smaller community also allows for deeper relationships and more frequent contact, as mentioned by Kevin: “We just have a broader network [in mainland]. My relationships on the island are getting deeper because there are fewer people, and I ask them more things. Like I've asked my supervisor hundreds more questions than any other professor in the program so far.” Another characteristic mentioned is the less formal and easy accessibility to the faculty: “You don't need to make an appointment. For example, you can just go to the teacher and

talk with them and they are happy to help you." Lenora and Kevin's examples illustrate a low barrier to interacting with and receiving guidance from professors without formal constraints like appointment requirements. The potential for informal relationship building seems higher than in large, more impersonal university settings. It suggests that the island's academic network, though smaller, is significantly more personable and responsive, which could enhance learning experiences and personal growth.

Another interesting finding is the use of resources beyond the direct offerings from university communities. AI tools, such as ChatGPT, are popular choices among bachelor and master students, more so than among those at higher educational levels. Michalis comments, "ChatGPT typically is really, really amazing. Amazing job honestly, which is life-saving", while Daniel notes, "Most of the time, yeah, I'm satisfied, especially with ChatGPT". On the other hand, at the higher education level, Nefeli mentioned that she does not use ChatGPT but mainly finds it useful for translation tasks; or Christos mentioned "It's a very interesting tool. I use it as a tool, not as a substitute of my capabilities". This difference in usage can be explained by the fact that for lower academic levels, the complexity of tasks is not as high, allowing AI tools like ChatGPT to be more effectively utilized. This implies the importance of support within the university for higher education levels and suggests that for lower education levels, it would be beneficial to guide students on how to use these tools efficiently and effectively. These external sources like online tools and external communities can be complement the support from university.

Social life on Lesvos

The social environment on the island is described as close-knit and welcoming. Yasmin and Spyros describe an inclusive, welcoming social atmosphere conducive to expanding one's community integration. Yasmin states "People are very welcoming, you meet new people every day. Whenever you show interest to people, people show interest back". The small and close community also makes it easier to expand one's network, as mentioned by Spyros: "When you go to a cafeteria or a bar, you usually meet the same people. So if you're a little bit more open and social, then it will be easy." Daniel also confirms the welcoming nature of the university community but mentions how a language divide with the older local population can hinder full social immersion: "Most of them [old people] don't understand English. And for me, I don't speak Greek, so on the island in general, it's limited. But in the university, because most Greek students speak English, you find yourself in the circle of certain age brackets."

Support resource

While the smaller scale appears advantageous for relationship development, the insights reveal potential shortcomings in university support structures like mental health services. Christos

identifies a need for “The psychology services, like this I have, I would like to be more often, like once a week”. This implies that current mental health counseling offerings may be limited or insufficient to meet student needs. Nikolaos also highlights a significant gap in the university's infrastructure for supporting student mental health and reporting issues like harassment. He states, “They don't have very good infrastructure for supporting students for their mental health, for example. They don't have an adequate platform for students to disclose complaints or make some official, you know, whenever they, for example, sexual harassment, stuff like that.” This lack of proper mechanisms can leave students without recourse or support when facing mental health challenges or misconduct situations.

These ideas suggest opportunities for the island university to strategically use its relationship-building advantages while enhancing support offerings. Facilitating quality peer mentorship programs, collaborative assignments, and faculty engagement could improve the tight-knit environment. As Christos states, "I would love to actually suggest in this university to make more partnerships, more collaborations," partnering with local organizations and prioritizing mental health initiatives could help provide supportive resources tailored to the island context.

In conclusion, the academic and social environment at the island university offers a unique, personal, and accessible experience that differs significantly from larger, more impersonal institutions. However, the findings suggest areas for enhancement, particularly in support structures for both academic and mental health needs.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATION

5.1. Conclusions

Academic support in higher education encompasses a variety of services and strategies aimed at assisting students, teachers, and staff in achieving their academic goals, involving emotional support, academic guidance, tutoring, and mentorship from diverse sources such as family, peers, professors, and university staff. These supports can significantly enhance students' learning experiences, contributing to better retention rates and academic success by providing customized guidance and resources tailored to individual needs. Additionally, academic support plays a vital role in maintaining students' well-being through mental health support and coping strategies offered by educational psychologists, thereby supporting overall academic performance.

The factor analysis and regression analysis have highlighted the significant impact of perceived academic support on both life satisfaction and academic satisfaction. Satisfaction with academic support directly enhances academic satisfaction, while trust in and the availability of academic support positively influence life satisfaction. Given the intertwined relationship between life satisfaction and academic satisfaction, these aspects of academic support exert both direct and indirect effects, underscoring their importance for overall well-being and academic success. Additionally, the model reveals a positive effect of a sense of belonging and a negative effect of commute time on life satisfaction.

The ERGM model illustrates how that homophily effects and individual characteristics influence support-seeking behavior in a university setting. Specifically, there is a marked preference for seeking support within the same department and gender, which nurtures a supportive and collaborative academic environment. Age differences reveal a tendency for individuals to connect with peers of a similar age, enhancing relatability and understanding within these groups. Gender also plays a crucial role, with females more likely to form connections, thereby increasing their participation in the support network. Lastly, the network exhibits a tendency to form closely clustered relationships, indicating high levels of collaboration and cohesion.

Peer relationships emerge as the most important aspect of support networks within universities, primarily because they offer the highest frequency of interactions and cover a diverse array of support types. This positions peers as essential providers of both academic and personal support, facilitating a comprehensive support system for students facing various challenges. Following this, the relationship with professors stands out as the next critical component, characterized by

significant interaction intensity and the availability of diverse forms of support, though it falls short in areas of psychological support. This gap underscores a crucial role for psychologists, who, despite being less frequently contacted, are pivotal in addressing the specific mental health needs of students.

The academic experience at the island university is distinguished by a less formal, closely-knit environment that fosters deep, personal connections with faculty, contrasting sharply with the more impersonal, larger settings on the mainland. Socially, the island's environment is welcoming and inclusive, encouraging new connections daily and facilitating community integration. However, while the smaller community aids relationship building, it also reveals gaps in support structures, particularly in mental health services and mechanisms for reporting issues like harassment, highlighting a crucial area for development. Lastly, the use of AI tools like ChatGPT varies by educational level, suggesting a need for guidance on effective utilization, especially for lower academic levels, complementing traditional academic support with modern technological resources.

5.2. Policy implications

Given the positive effects of perceived academic support on life and academic satisfaction, universities should invest in expanding their academic support services to make them more accessible to all students. Research shows that students perceive academic support positively, but mental health support is often seen as insufficient. Therefore, universities should enhance their mental health services, integrating them with academic support and lifestyle management programs, including stress management workshops, mental health counseling, and physical health promotion, all contributing to improved life and academic satisfaction.

The sense of belonging has a positive effect on life satisfaction; therefore, universities should implement initiatives to build community and foster a sense of belonging among students. Interestingly, exchange students, report a higher sense of belonging than local students with the most popular mentioned group is ERASMUS group. To enhance this sense of belonging among all students, universities should assist in creating student organizations and groups, enhancing mentorship programs, and organizing social events that encourage interaction among diverse student groups.

Commute time negatively affects life satisfaction; therefore, universities can offer more online learning opportunities, adjust class schedules to be more commuter-friendly, and enhance transportation options, such as increasing bus frequency.

Given the popularity of ChatGPT and other AI tools, especially among bachelor and master's students, universities should consider integrating these technologies into their curricula and providing training to ensure students understand their capabilities and limitations. By embedding AI tools in academic support frameworks and offering workshops for their effective use, institutions can enhance learning outcomes and foster a more inclusive educational environment. Monitoring usage and effectiveness will also allow universities to refine their approach continually.

Peer connections play a crucial role in the university support network. Developing and expanding formal peer mentoring and support programs can leverage the high frequency and diversity of support types that peers provide. Universities could establish structured peer mentorship initiatives that train senior students to support incoming or less experienced students, covering both academic and personal challenges. Currently, networks mostly form within departments; thus, facilitating the creation of interdisciplinary support groups can allow students from different departments to interact and support each other.

Given the tendency to seek support within the same department and gender, universities should support intra-departmental networking by creating structured opportunities for students and faculty within the same departments to engage and interact. This could involve department-specific orientation programs, mentorship initiatives, and regular networking events designed to build connections and share resources within the department. Apart from enhancing intra-department interactions, universities should promote diversity and inclusion initiatives to counterbalance the homophily in support-seeking. This could involve workshops, mixed-gender study groups, and collaborative tasks that require involvement from diverse groups.

5.3. Limitations and further research

This research has several limitations due to the data collection methods. Firstly, the sample method used was a convenient method, which can introduce bias and affect the representativeness of the results. Secondly, I utilized both paper and online surveys to collect data. The mixed methods might result in contextual differences and potential response bias, and there is also uneven participation across different departments. These factors could limit the reliability and generalizability of the findings, indicating the need for a more systematic and balanced approach in future research.

Future research should aim to increase the sample size and use a more systematic sampling method to enhance representativeness and reduce bias. Additionally, a consistent data collection method should be employed to minimize contextual differences and response bias.

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APPENDICES

APPENDIX A: QUESTIONNAIRE

I am Minh Nguyen, a master's student in Islands and Sustainability from the University of Groningen and the University of the Aegean. The purpose of this questionnaire is to understand the dynamics of advice and support-seeking networks within university settings on islands and to compare mainland and island contexts. The questionnaire will take approximately 10 minutes.

Please be assured that your participation is entirely voluntary, and all responses will be kept strictly confidential. All personal information will be kept **confidential** and public reports are **anonymized** to maintain participant privacy. The data collected will be used solely for academic research purposes and will be securely deleted after 2 years.

Your help is important and greatly appreciated! Thank you in advance!

I. DEMOGRAPHIC INFORMATION:

1.Your name _____

2.Gender:

□ Male □ Female □ Others_____ □Prefer not to say

3.Age: _____years old

4.Academic Department

□ Department of the Environment □Department of Social Anthropology and History
□ Department of Geography □Department of Sociology
□ Department of Marine Sciences
□ Department of Cultural Technology and Communication

5. What level of academic study or position are you currently pursuing or holding?

□ Bachelor Student □Master's student □ PhD student
□ Postdoctoral researcher □ Associate Professor □ Professor

5.1. (For Bachelor, Master, PhD, Postdocral) Are you enrolled as a full-time student/researcher at the University of the Aegean, or is this university only part of your program?

□ Yes, my full program is at the University of the Aegean

□ No, the University of the Aegean is only part of my program.

5.2. If no for 5.1, please specify what other university/ universities you study/do research at: _____

5.3. (For Bachelor, Master) Which program are you following?

_____

5.4. For Ph.D./ Postdoctoral/ Associate Professor/ Professor. Which research field/topic of research are you working on (few keywords)_____

_____

6.How long have you been living/did you on Lesvos?

_____years/_____months

7.Where are you from?_____

8. Where do you live/used to live on Lesvos ?

Street/neighborhood(if possible)_____Town/Village/City_____

II. WELL-BEING AND HAPPINESS

9. All things considered, how satisfied or dissatisfied are you with your life overall using a 1–10 scale? [1 = very dissatisfied, . . ., 10 = very satisfied.]

10. How satisfied are you with academic life?/ academic career [1= very dissatisfied, . . ., 10= very satisfied.]

11. How satisfied are you with your social connections and networks on Lesvos? [1= very dissatisfied, . . ., 10= very satisfied.]

12. What is your academic grade:

□ <50% □ 50-75% □ 75%-85% □ 85% -100% □ I prefer not to say

13. How long does it take you to go to the University? _____minutes

14. Do you feel connected /belong to any social groups/ communities on Lesvos (e.g.: Erasmus, class, local groups, etc)?

□No □ Yes, please specify which groups_____

15. Please rate the following statements on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree):

Statement	**1 (Strongly Disagree)**	**2 Disagree**	**3 (Neutral)**	**4 Agree**	**5 (Strongly Agree)**
I am satisfied with my academic performance					
I feel optimistic about my future career prospects.					
I have a healthy balance between my academic work and personal life.					
I often feel stressed about my academic work.					
I have access to adequate mental health and well-being resources at my university.					

IV. Perceptions of Advice-Seeking Environment:

16. What other sources have you used for seeking academic advice or asking academic questions? (Please check all that apply)

□ ChatGPT or other AI-based chatbots □ Online forums (e.g., Reddit, Quora)

□ Social media platforms (e.g., Facebook groups, LinkedIn)

□ External academic networks or professional associations

□ Family or friends □ Library resources/books

□ Other (please specify): _____

17. To what extent do you agree with the following statements?

Statement	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
The university provides adequate resources to support students.					
I feel comfortable seeking advice/support from others within the university.					
The advice/support I receive from others within the university is helpful.					
I am satisfied with the support/advice I receive from others in the university					
I **cannot** seek advice/support due to a lack of trust in the university's support systems.					
I prefer to seek advice/support from other settings (e.g., online forums, external networks) than from the university					

18. Do you think being in an island university creates different advice-seeking behaviours from mainland universities? How?

□ No

□ Yes, please specify_____

_____

_____

19. I am planning to conduct follow-up interviews with some participants. If you are open to participating in these interviews, kindly leave your email address below. Your involvement would be greatly appreciated, I will reach out to you later to arrange a suitable time:

□ No, I don't want to participate the follow-up interview

□ Yes, (please provide your email) _____

APPENDIX B: INTERVIEW GUIDE

‘Interview Guide for Follow-Up Interviews on support-Seeking Networks

I am Minh Nguyen, and I am a master's student conducting research on support/advice-seeking networks in university settings. Thank you for agreeing to participate in this interview.

The purpose of today's interview is to further explore the experiences and perspectives related to how students and scholars seek and provide advice and support in island university contexts in Lesvos island. This discussion will help enrich our understanding of the dynamics involved and identify potential areas for improvement.

Opening Question:

"Could you briefly describe your current academic role and the main focus of your studies or research?"

Well-being

How important do you consider social support networks in maintaining your well-being on the island?

How frequently do you participate in social activities or events within the local community on the island?

To what extent do you feel integrated into the social fabric of Lesvos?

How important do you consider social support networks in maintaining your well-being on the island?

Can you describe any specific social groups or communities you feel particularly connected to on Lesvos?

How would you rate the availability of opportunities to expand your social network on the island?

What aspects of your academic life contribute most to your sense of well-being and happiness?

Are you happy with your social life on Lesvos ? (friends,), can you tell me more about it.

Have you faced any particular challenges that affected your well-being and happiness during your studies? If yes, how did you address them?

In what ways do you think your university could better support the well-being and happiness of its students?

Are the professors/teachers/staff give you some advice other than academic? Such as personal or career advice?

General Advice-Seeking Behavior:

"Can you tell me about the last time you sought advice related to your studies or research? What prompted you to seek advice, and how did you go about it?"

Which methods do you often use for advice-seeking: online**/in-person** meetings, email, etc? Why do you normally use those? Where do you normally meet them if it’s in-person meetings (campus/downtown)?

"What factors do you consider when choosing whom to ask for advice within the university setting?"

Are you satisfied with the advice that you normally get? Is there sometimes that you are not satisfied with the replied answers/advice?

Do you feel comfortable asking for advice within your university?

Resource Utilization:

"What resources provided by the university do you most frequently use for advice-seeking? Can you describe a typical interaction with these resources?"

"Do you use other kinds of supports/channels apart from university for advice seeking?

->If yes, what kind of support? ->You mentioned using [….]. Could you elaborate on how you use this resource and what makes it appealing?

Comparison of Environments:

"In your experience/Do you think are there differences in the availability or quality of advice between island and mainland university settings? Please explain any specific instances or overall impressions."

"How do geographical factors influence the advice-seeking behaviors of you or your peers?"

Barriers and Challenges:

"Have you faced any challenges or barriers when seeking advice within Aegean university? How did you address these challenges?"

"Is there anything that prevents you from using certain advice sources more frequently?"

Impact of Advice on Academic and Personal Development:

"How important is the role of advice in shaping your decisions and actions as a student or researcher?"

What kind of other sources do you use to seek advice outside university settings(chatgpt, forum etc)

Do you prefer seeking advice from external networks over university resources? Why?

Final Thoughts:

"Is there anything else you would like to add that we haven't covered, especially regarding how advice-seeking could be improved in your university?"

Thank you so much for your participation and for your time and contributions.

Do you want me to send the report summary of my thesis when I finish? Yes/No

APPENDIX C: CONSENT FORM

Consent Form for Participation in Research Study Interview

Study Title:

Researcher: Minh Nguyen, Master's Student in Islands and Sustainability

Researcher's email: M.Nguyen.Thi.Thuy@student.rug.nl

Participant Name: _____

Participant Email Address/Phone Number: _____

This research is conducted to understand the dynamics of advice-seeking within university settings and how geographical contexts influence these behaviors. The interview will explore your personal experiences and perspectives and will last approximately 45-60 minutes.

You will be asked questions about your personal perspective and experience. There are no right or wrong answers. You may decline to answer any questions you are not comfortable with, and I will move on to the next question.

Confidentiality and Data Handling:

Your name will be pseudonymized and other personal information will be anonymized to avoid any risk of identification. All data will be securely stored and used solely for this research. Data will be deleted permanently after 2 years. Audio recordings will only be used for transcription purposes and will not be attached to your personal data.

Participant's Agreement:

I understand that my participation in this research study is voluntary.

I am informed about the research purpose.

I am aware that I have the right to stop the interview or skip any question I do not feel comfortable answering.

I understand that my data will be used for this research and treated confidentially.

I consent for this interview to be audio recorded.

Interviewer's Agreement:

I declare that I have fully informed the participant about the study.

I have provided the participant with my contact information.

I guarantee that the participant's identity will remain confidential throughout the transcription, recording, and reporting process.

If further information arises during the study that may impact the participant's consent, I will timely inform the participant.

Participant's Signature: _____ Date: _____/_____/2024

Interviewer's Signature: _____ Date: _____/_____/2024

APPENDIX D: RESEARCH DATA MANAGEMENT PLAN

Research Data Management Plan

1. General	
1.1. Name & Supervisor	**Researcher** Minh Nguyen Thi Thuy **Supervisor** Professor Thanasis Kizos Associate Professor Christina Prell
1.2. Organization	University of the Aegean University of Groningen
1.3. Description of the research project	This thesis is conducted by Minh Nguyen, a Research Master in Spatial Sciences (Islands and Sustainability). The purpose of the project is to focus on the relationship of academic support and life satisfaction and to understand the mechanisms of support seeking networks within university of the Aegean.

2. Data Collection	
2.1. Which data formats and which sources are used in the project?	● Theoretical research using previous literature and publicly available resources (secondary spatial data and laws/policies/plans, news/report, journal articles) ● Survey data ● Interview data
2.2. Methods of data collection	☐ Structured individual interviews ☒ Semi-structured individual interviews ☐ Structured group interviews ☐ Semi-structured group interviews ☐ Observations ☒ Surveys ☐ Experiment(s) in real life (interventions) ☒ Secondary analyses on existing datasets ☐ Other (explain):

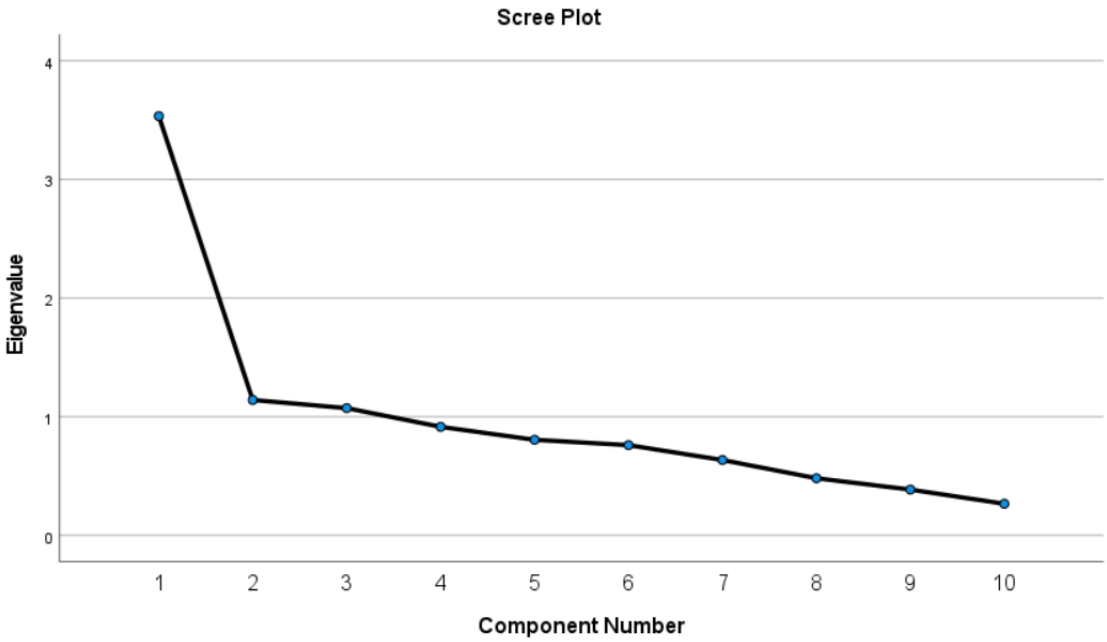
3. Human Subjects and Research Ethics	
3.1. Does your research involve the participation of human subjects?	Yes
3.2. Collecting personal data - will you be collecting personal data?	Yes
3.3. Will the research project involve participants who are in any way vulnerable?	☒ Adults (not vulnerable) >= 18 years ☐ Minors < 16 years ☐ Minors < 18 years ☐ Patients ☐ Other vulnerable persons, namely (please provide an explanation)
3.4. Consent of human subjects, is informed consent of the research subject necessary in order to process the data?	☐ No, informed consent is not required ☒ Yes, informed consent is required

3.5. Will participants be enlisted in the project without their knowledge and/or consent?	No
3.6. Will you recruit participants?	Yes
3.7. Are there any doubts or concerns regarding the safety and/or well-being of the research participant during the research period?	No
3.8. Do you think that the study could induce negative consequences for the participants after the study?	No
3.9. Are there any doubts or concerns regarding your own safety and/or well-being during the research period?	No
3.10. Categories of personal data that are processed	☒ Nationality ☐ Citizen service number ☐ Name and address details ☐ Telephone number ☐ Email address ☐ IP addresses and/or device type ☐Job information ☐ Racial or ethnic origin ☐ Political opinions ☐ Personal physical health ☐ Personal mental health ☐ Sex life or sexual orientation ☐ Religious or philosophical convictions ☐ Membership in a trade union ☐ Biometric information ☐ Genetic information ☐ Criminal record ☐Other *Gender, STEMS or not STEMS, career stage and advice network*
3.11. Providers of personal data	☒Data is obtained from the participants ☐Data is supplied by the University of Groningen ☐ Data has been supplied by an external party *All data regarding the human subject are obtained from respondents through maptionnaire*
3.12. Technical/organizational measures to protect personal data	☒ Pseudonymisation ☒ Anonymisation ☐ File encryption ☐ Encryption of storage ☐ Encryption of transport ☒ Restricted access rights ☐ VPN ☐ Regularly scheduled backups ☐ Physical locks (rooms, drawers/file cabinets) ☐ None of the above ☐ Other (describe below):

	All data are fully anonymized in nature, the data taken has no name and other personal information. In terms of storage, data will be saved in hard drive and not sharing for anyone else.
3.13. Personal data transferred outside the EU/EEA?	No

4. Storage, Sharing and Archiving	
4.1. Where will the raw data be stored during research?	☐ X-drive of UG network ☐ Y-drive of UG network ☐ (Shared) UG Google Drive ☐Unishare ☒ Personal laptop or computer ☐ External devices (USB, harddisk, NAS) ☐ Other (explain):
4.2. Storage after research: are you planning to store/archive data after you have finished your research? When yes, please explain where and for how long. Also, explain who has access to these data.	☐ X-drive of UG network ☐ Y-drive of UG network ☐ (Shared) UG Google Drive ☐Unishare ☒ Personal laptop or computer ☐ External devices (USB, harddisk, NAS) ☐ In a repository (i.e. DataverseNL) ☐ Other (explain): The maximum retention period of 2 year.
4.3. Sharing of data	☐University of Groningen ☐ Universities or other parties in Europe ☐ Universities or other parties outside Europe ☒I will not be sharing data
5. Remarks	
5.1. Other information	

APPENDIX E:



KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,778
Bartlett's Test of Sphericity	Approx. Chi-Square	354,201
	df	45
	Sig.	<,001

Reliability Statistics

Cronbach's Alpha	N of Items
,811	3

Reliability Statistics

Cronbach's Alpha	N of Items
,663	4

Reliability Statistics

Cronbach's Alpha	N of Items
,491	3

APPENDIX F

VIF test

```
        gender                level              belong             commute support_satisfaction
      1.166266             1.112963            1.128185            1.032051             1.681407
resource_trust   Academic_wellbeing
      1.477558             1.253492
```

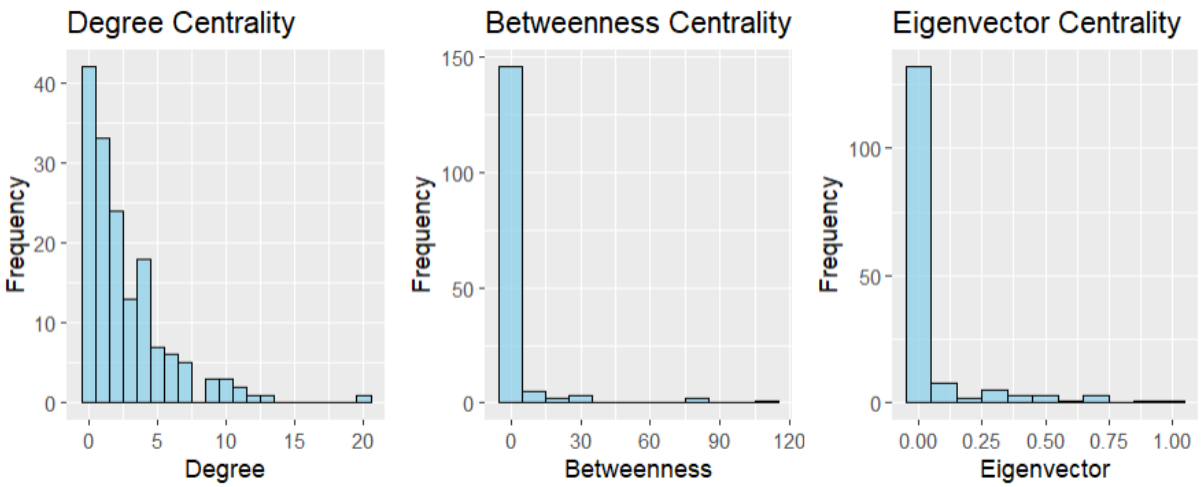
F-test for models 1 and 2

```
Residual standard error: 0.2622 on 140 degrees of freedom
  (12 observations deleted due to missingness)
Multiple R-squared:  0.2258,    Adjusted R-squared:  0.1871
F-statistic: 5.833 on 7 and 140 DF,  p-value: 5.956e-06
```

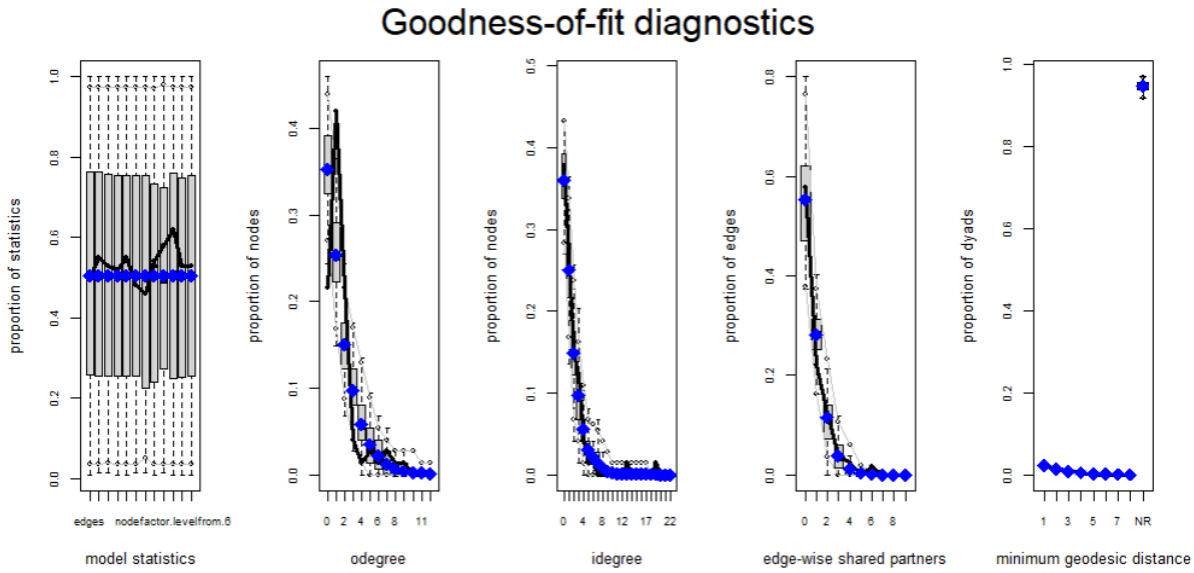
```
Residual standard error: 0.26 on 139 degrees of freedom
  (13 observations deleted due to missingness)
Multiple R-squared:  0.4234,    Adjusted R-squared:  0.3944
F-statistic: 14.58 on 7 and 139 DF,  p-value: 3.786e-14
```

APPENDIX G

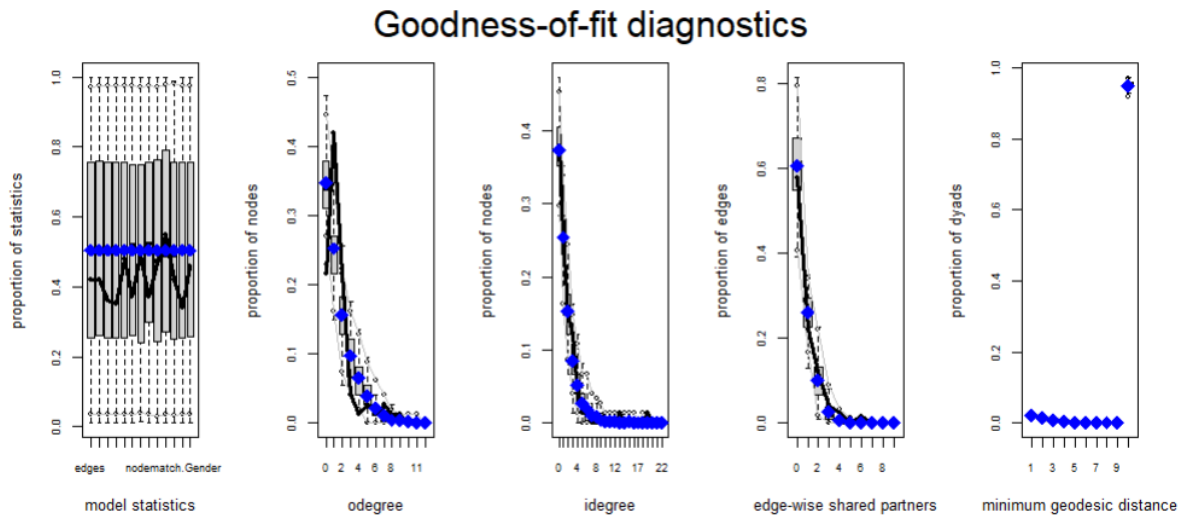
Centrality measure of support network within university



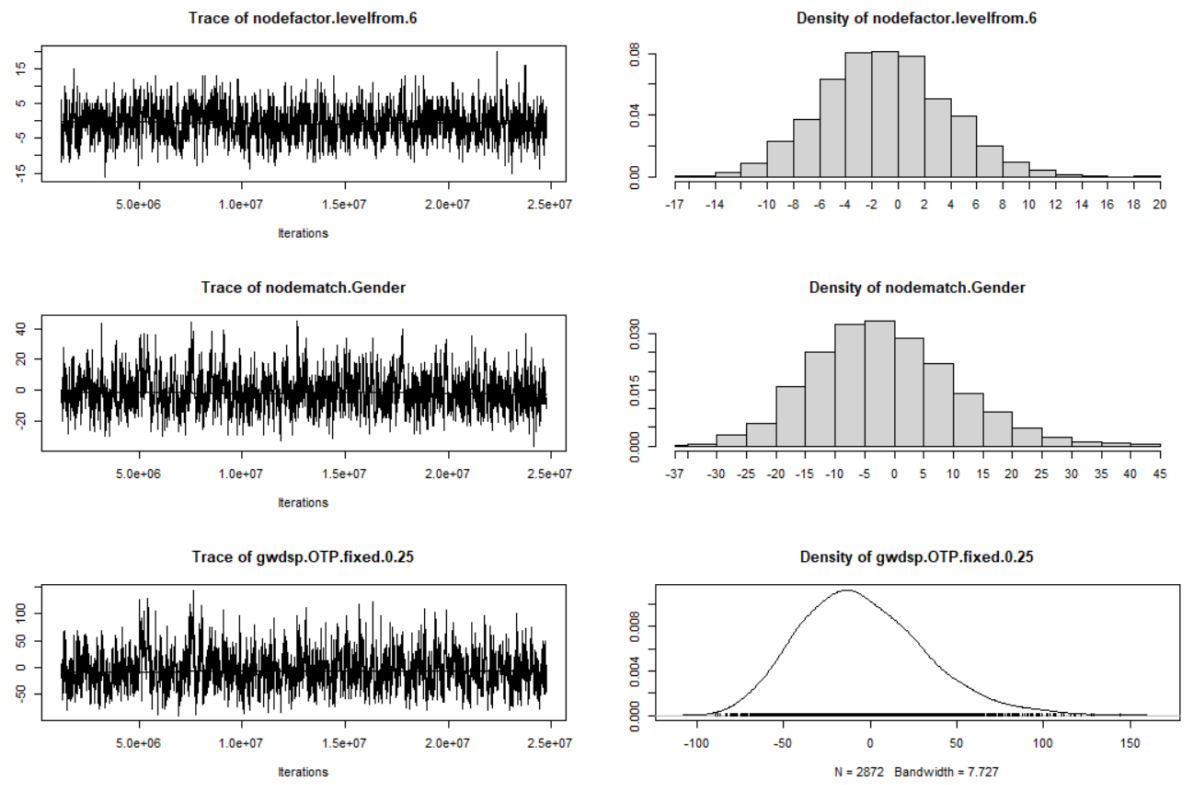
APPENDIX H



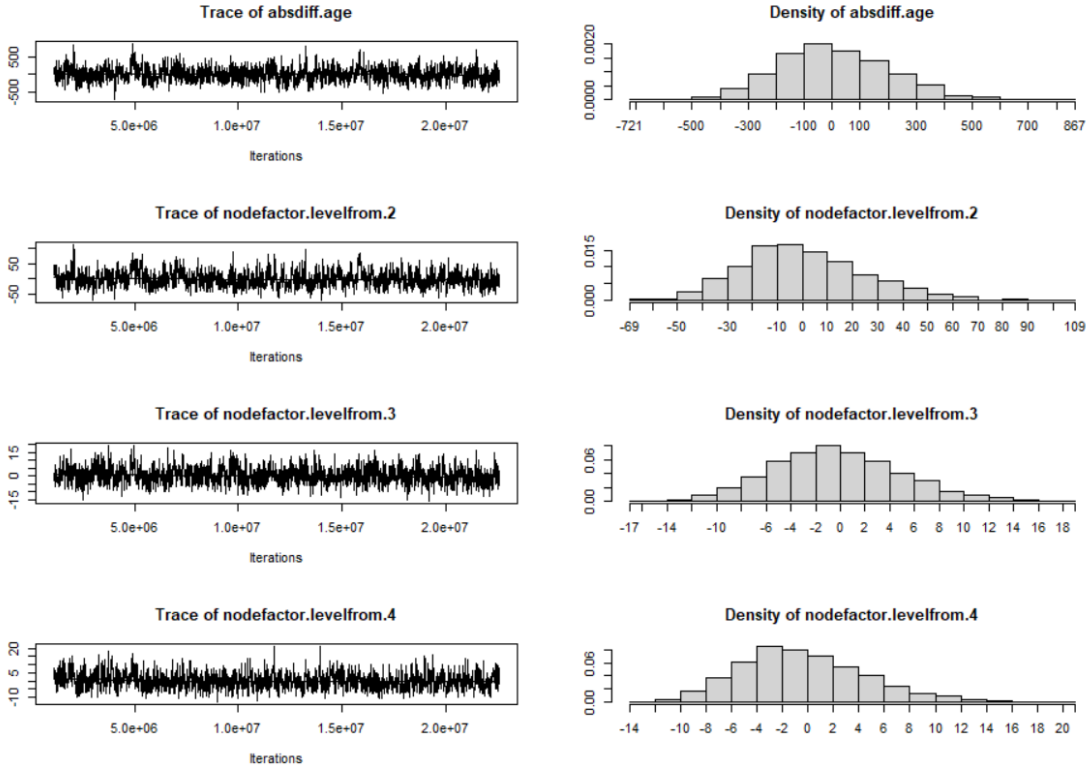
Goodness-of-fit test for model 1



Goodness-of-fit test for model 2



MCMC diagnostics test for model 1



MCMC diagnostics test for model 2