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Preface

This volume contains the accepted papers of the ICIMTH (International Conference on Informatics, Management, and Technology in Healthcare) for the year 2022, held in Athens, Greece, from 1–3 July 2022. The Scientific Programme Committee hereby presents the scientific outcomes of the ICIMTH 2022 Conference to the academic and professional Biomedical and Health Informatics community.

The ICIMTH 2022 Conference was the 20th Annual Conference in this series of scientific events, which attracts scientists working in the field of Biomedical and Health Informatics from all continents. This year, with the improvement in the pandemic situation as regards COVID-19 and the lifting of restrictions, the Conference was held as a live event. Virtual sessions by means of teleconferencing were, however, allowed for those who were unable to travel due to local restrictions in certain countries.

Data science, informatics, and technology inspire health professionals and informaticians to improve healthcare for the benefit of all patients, so the field of Biomedical and Health Informatics was examined from a very broad perspective at the Conference. Participants presented research and application outcomes of informatics from cell to populations, including several technologies such as imaging, sensors, biomedical equipment, and management and organisational aspects, including legal and social issues. As expected, a significant number of papers were still related to the COVID-19 pandemic. By the deadline, more than 230 submissions had been received from which, after review, 130 were accepted as full papers and 19 as short communication and poster papers.

The organisers would like to thank Dr. Spyros Zogas and Prof. John Mantas for the design of the book covers for the entire conference series. This year the cover commemorates the significance and contribution to medicine, nursing and healthcare of Asclepius, who introduced health institutions as a means of healthcare delivery in early antiquity; Hippocrates, the father of Western medicine; Galen, the most distinguished medical researcher of antiquity; Florence Nightingale, the founder of modern nursing and health statistics; and George Papanikolaou, the pioneer physician, founder of cytopathology, and inventor of the Pap-test.

The Editors would like to thank the members of the Scientific Programme Committee, the Organising Committee, and all reviewers, who carried out the very professional, thorough and objective refereeing of the scientific work in order to achieve a high-quality publishing achievement for this successful scientific event.

Please note that these Proceedings are also published as an Open Access eBook, which allows e-access for ease of use and browsing without the loss of any of the advantages of indexing and citations, in the major scientific literature databases such as PubMed/Medline and Scopus which the series Studies in Health Technology and Informatics (HTI) of IOS Press provides.

Athens, 20.05.2022

The Editors,

John Mantas, Parisis Gallos, Emmanouil Zoulias, Arie Hasman, Mowafa S. Househ, Marianna Diomidous, Joseph Liaskos, and Martha Charalampidou

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Student Experience and Its Relationship with Campus Mental Well-Being

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Abstract. This research offers a generalizable Campus Mental Well-being Sense of Coherence Framework for improving student experience by classifying SES variables according to Antonovsky's salutogenic health logic (GRRs and SRRs) and by mapping these variables to the Information Infrastructure to Experience Framework (IEF).

Keywords. Student experience, campus mental well-being, sense of coherence, digital health, digital infrastructure

1. Introduction

Universities are continually making extra efforts to provide quality information and effective communication throughout a student's journey. Initiatives to improve student engagement, experience and well-being will need to consider the changing demographic of university students; university enrolments now consists of non-traditional students such mature, part-time and first-generation students [1]. Campus climate, sense of belonging, ethnicity and socioeconomic factors affects student retention and engagement especially with first-generation students who are reported to having lower retention and engagement [2]. Access to information and services as well as caring retention officers are identified as resources necessary for first-year student retention [3].

Information is key in all aspects of a student's unique journey at university, and how this information reaches a student and is used, contributes to their overall experience. Further, technology not only helps students to be actively engaged with their learning, but it also enables interaction with their educators and peers, both within and outside of their learning environment. These factors are considered as enablers of engagement and retention [4].

Student experience is traditionally assessed through annual, nationwide surveys in the UK, USA, and Australia. The data collected is used to improve university's efforts towards providing better student experience. The Department of Education, Skills and Employment runs a yearly Student Experience Survey (SES) in Australia which gives opportunity to students to give feedback on various aspects of a student's university experience. Using these SES variables as a foundation for student experience,

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universities can put in strategies to improve information flow that can enhance a student's coping skills.

This ability to better use coping skills is an essential element of a person's sense of coherence, which refers to a person's ability to cope with stress and promote health, which was defined by Antonovsky as the 'salutogenic' concepts [5]. Antonovsky describes sense of coherence using three concepts [6]:

- Comprehensibility – refers to a person's ability to view the situation as comprehensible, structured, predictable, and explicable
- Manageability – refers to a person's ability to cope with the demand of the situation and the perception that resources are available to meet the demands posed by these stimuli
- Meaningfulness – refers to what extent a person perceives that these demands are emotionally important, worthy of investment and engagement

Using Antonovsky's theory, we can determine and apply the resources needed to combat a specific stressor and in doing so promote an improved sense of coherence and consequently, an improved well-being outcome. The resources needed are divided into two categories – General Resistance Resources (GRRs) and Specific Resistance Resources (SRRs) as defined by Antonovsky:

GRRs are characteristics of a person, a group, or a community that facilitate the individual's abilities to cope effectively with stressors and contribute to the development of the individual's level of sense of coherence.

SRRs are characteristics that can be optimized by societal action in which health promotion has a contributing role, for example the provision of supportive social and physical environments.

2. Method

This research offers a generalizable Campus Mental Well-being Sense of Coherence Framework for improving student experience by applying the principle of design science and aligns specifically to the discipline of Information Systems (*comprising systems, people and processes*) [7].

2.1. Framework development

Problem Definition: Currently, there does not exist a method to model how to improve student experience by examining the role that information infrastructure and services play in the delivery and support of student experience.

Solution Objectives: To improve student experience by inducing and supporting well-being (*physical, mental, and social*) through existing university information technology infrastructure.

Design and development: The framework development was achieved by refining the two ends of a student's journey (*student attrition and student experience*) into sense of coherence concepts (*comprehensibility, manageability, meaningfulness*). The SES variable are mapped into either GRRs or SRRs to define the State of Well-being descriptions of comprehensibility, manageability and meaningfulness. The resulting framework (Figure 1) is developed by extracting variables of interest from the SES.

3. Results

Mapping GRRs and SRRs to create a State of Well-being: The realization of the existence of both GRRs and SRRs are important in helping students and the university to identify resources and help students move to the State of Well-being (Figure 1). Comprehensibility, manageability and meaningful are used as the perspective through which to support and promote well-being. This provides a method to define what a positive and supportive student experience looks like and link this to the IEF. A stronger IEF capability will enable students to gravitate closer to the State of Well-being. GRRs contributes to attrition and SRRs contributes to better student experiences.

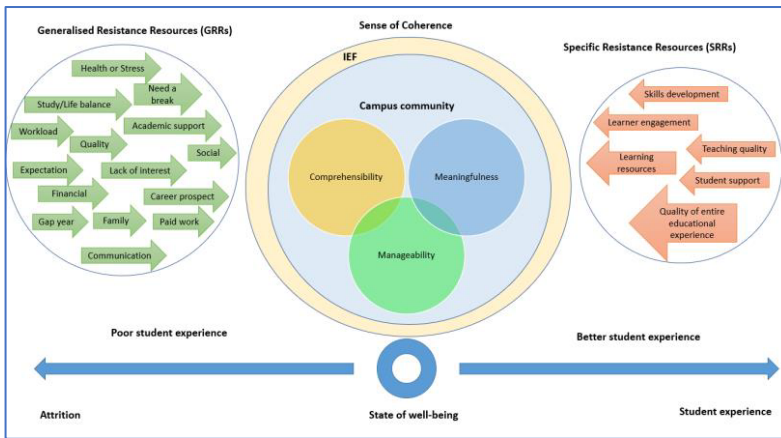


Figure 1. Campus mental well-being Sense of Coherence.

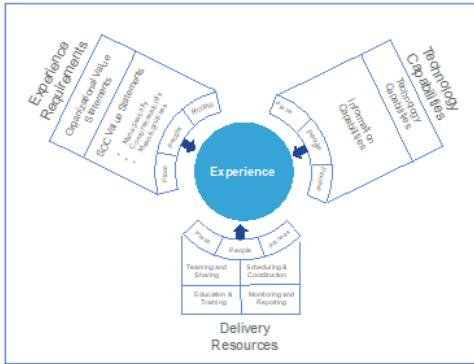
Mapping GRRs and SRRs to Information Infrastructure to Experience Framework (IEF): The link between information infrastructure and student experience is achieved by classifying the solution into people, place, and process, and then defining the information capabilities required to support a sense of coherence based on people, place and process.

Table 1. Technology capabilities: The presence or absence of capabilities is used to assess the information infrastructure of the university, according to the type of operational process that they contribute to.

Place	People	Process
Activities which the students interact with and impact upon the physical environment that a student experiences.	Activities that relate to the interaction of people, how they communicate through all forms of media, how they form and manage groups.	Activities which interact with and impact upon the operational processes including activities such as interoperating, scheduling and orchestrating.

Table 2. Delivery resources: Information Capabilities assemble within the applications, devices and systems of a university to generate the operational processes.

Teaming and Sharing	Scheduling and Coordination	Education and Training	Monitoring and Reporting
Simply and conveniently bringing together staff and student.	Linking the staff and student engagement with scheduling and booking functions within the university.	The research materials are available at the appropriate time and in the appropriate format to best support the students and the staff.	The ability of students and staff to access and interpret student progress data, evaluate compliance and modify the engagement.



Experience requirements: The state of well-being statements derived from literature and experience are mapped into comprehensibility, meaningfulness, and manageability domains. The pathway from IEF can be mapped as shown in Figure 2.

Figure 2. Information Infrastructure to Experience Framework (IEF) [7].

4. Discussion and Conclusions

A good student experience will contribute to better mental well-being when universities leverage existing environmental or information infrastructure to improve student's coping skills. Understanding student behaviors to create wellness-based environments [8] would enable the development of systems level interventions. When end-user applications interact with IT infrastructure at schools, universities and workplaces [8]. A revamp of campus-wide information and communication technology will enable better student experience when the technology is able to satisfy the information and communication needs of the student inside and outside of the university campus.

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