WIP: Evaluation of the Third Design Cycle of the Wellbeing Teaching Assistant (WTA): Understanding What Type of Cases are Served Through a Categorization Analysis

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Introduction

Over the past few years, mental health has become very important for higher education institutions worldwide [1]. As a consequence, various universities have incorporated practices to promote and enhance student well-being [2]. Well-being has been defined as a multidimensional concept, encompassing physical, contextual, and psychological aspects [3, 4], all of which can influence learning processes [5]. As an intervention to foster well-being, our school of engineering has created the *Well-being Teaching Assistant* (WTA). Within our engineering courses, this role is assumed by undergraduate or graduate students, who is in constant communication with students, striving to (1) provide emotional containment for students experiencing complex situation, and (2) proactively contact students with university services.

An underlying hypothesis for the creation of the WTA role is that, the support provided by someone who is perceived as a peer within the teaching staff, favors students' social ties such as their sense of belonging and mattering. Prior studies have shown that both dimensions of social ties have positive effects on the mental well-being of students in higher education [6][7][8][9][10][11][12][13]. Flett [14] argues that this is because both senses of belonging and mattering can mitigate the impact of life stressors on people's lives. In engineering education contexts, prior work has shown how these dimensions indirectly positively influence students' capacities to self-regulate their learning [15].

Under these theoretical guidelines, the role of the Well-being Teaching Assistant (WTA) has been examined until today. Since its creation in the outbreak of the pandemic in 2020, this role has aimed to provide containment to the student body in moments when higher education programs needed to become more flexible due to the non-presence in the context of the global health alert. Following a design-based research approach, a first iteration consisted of describing the Action and Communication Protocol (ACP) used by students [16], while a second study preliminary evaluates the role of the WTA from the perspective of students[17].

In a third iteration, the WTA program has created a course to provide comprehensive and timely training to WTA in short period of time (10 hours approximately), along with providing WTA's with a web-based platform that aims to support WTA's work in terms of monitoring their interaction with students. In this context, this article reports an evaluation of the third design cycle conducted during 2023. This evaluation was carried out by means of survey applied to a volun-

Table 1: What motivated the contact with WTA?[1]

	n	%
A personal problem (e.g., death of a close relative)	52	38.24
Difficulties with the content covered in the course	47	34.56
Difficulties with course workload	53	38.97
Percieved lowered mood	30	22.06
Other (please specify)	31	22.79

[1]Multiple-response set. Total greater than 100%. $n = 176$

tary response sample with the objective of understanding students' experience, delving especially into the perceptions of receiving support in different dimensions connected to the objectives of the program. The following sections present the analysis of the program evaluation as well as lessons learned.

Methods

The Well-being Teaching Assistant (WTA) program is part of the School of Engineering at a highly selective university in Latin America. This school is comprised of 10 engineering departments and three interdisciplinary units, and serves approximately 4,500 students.

This study is part of the third iteration of the program during the second semester of 2023, where WTAs were incorporated into 52 massive courses of different nature (Theoretical, Practical, Massive across the curriculum). Considering the current scale of the program, this study involved a total of 563 undergraduate students, of which 176 reported having had contact with WTAs. Aiming to understand students' experiences with the program, the research question addressed in this study was: What types of support do WTA provide to engineering students with different needs? To answer this research question, a survey questionnaire was used to collect information about the interactions between students and WTAs, and those students who reported having had contact with WTAs were asked about the presence or absence of different issues that might have motivated the contact with WTAs (contact motives); along with 5-category Likert scales on different aspects of the support received from the WTA.

Since contact motives were measured through categorical variables (see Table 1), a Latent Class Analysis was developed in R to obtain an emergent classification of the data [18] by using the poLCA package [19]. This assumes that the class is a categorical latent variable underlying a set of observed variables that are also categorical, making it suitable for identifying a typology of contact motives.

To identify the type of support provided by the WTAs, three scales were designed to measure the accomplishment of the objectives of the program: (1) one measures emotional support and containment, (2) personalized academic support, and (3) flexibility in evaluation and delivery deadlines. These scales were validated by Exploratory Factor Analysis (EFA) using the psych package [20]. Since the scales consist of ordinal items, the EFA is estimated using polychoric correlations. In addition, we assume that the latent dimensions of support might be correlated, and thus an oblimin-type rotation is used.

Table 2: Received support scale

	Min	1st Qu.	Mean	3rd Qu.	Max
The WTA helped me understand specific course content	1	1	2.74	3	5
The WTA provided me with support in dealing with a personal problem	1	2	3.48	5	5
The WTA offered me personalized academic support	1	1	3.03	5	5
The WTA helped me deal with my academic load	1	1	3.22	5	5
The WTA helped me deal with assessment deadlines	1	2	3.45	5	5
The WTA helped me deal with administrative paperwork	1	2	3.13	5	5
Contact with the WTA made me feel that someone cared about me	1	3	3.72	5	5
The WTA offered me support during a difficult time	1	2	3.34	5	5
Contact with the WTA made me feel more at ease	1	3	3.90	5	5

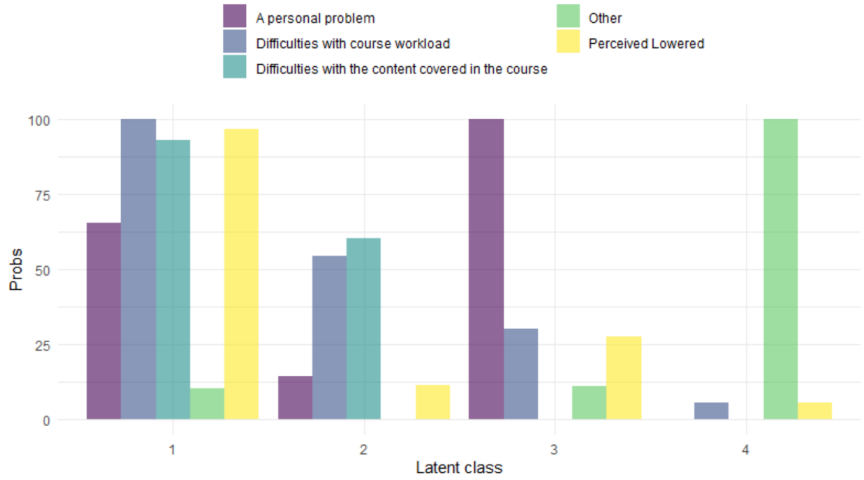

Figure 1: Factorial analysis

Results

A Latent Class Analysis of the contact motives resulted in a four-class model. Figure 1 shows the probabilities associated with different reasons to be in contact with the WTA after classification. Class 1 presents high probabilities that the contact is due to difficulties with the course content, with the course workload, with their personal mood and, to a lesser extent, with a personal problem (e.g., being sick in a specific week, etc.). Class 2 presents a probability of more than 50% of presenting strictly academic difficulties (course content and course workload), Class 3 corresponds to cases of personal problems, and Class 4 to the ”Other” category.

Table 3 presents the results of the EFA, in which three latent dimensions emerge. Based on the items with high loadings on the first factor MR1, this is interpreted as emotional containment. MR2 is interpreted as personalized academic and administrative support. Finally, MR3 is interpreted as support in relation to flexibility in terms of deadlines and evaluations.

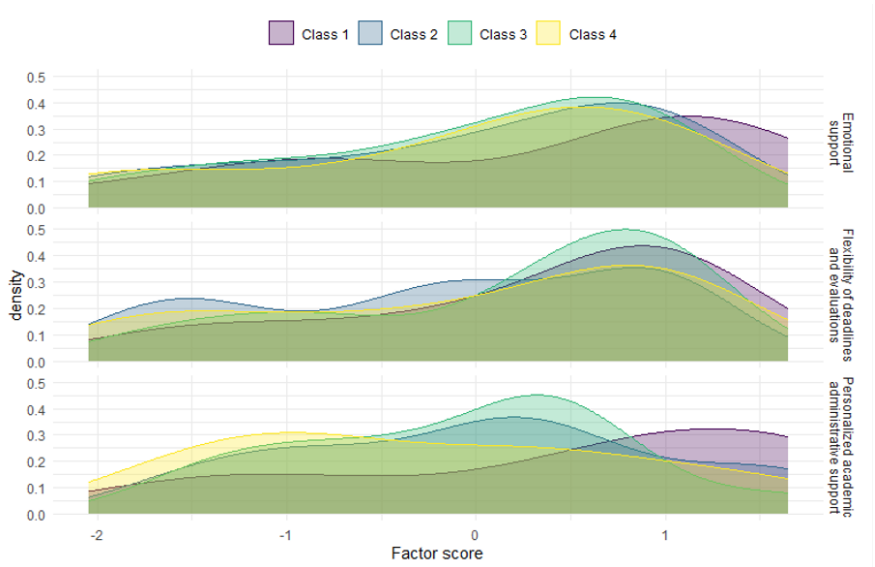

Figure 2: Latent dimensions extracted by EFA[3]

[3] Anova MR1 (F=.20, p=.89); Anova MR2 (F=1.15, p=.33); Anova MR3 (F=.77, p=.52)

Table 3: Exploratory Factor Analysis[2]

Item "Contact with WTA…"	MR1	MR2	MR3	h2	com
offered me support at a difficult time.	0.97			0.92	1.02
made me feel more at ease.	0.90			0.94	1.11
made me feel that someone cared about me.	0.88			0.74	1.03
gave me support in dealing with a personal problem.	0.51			0.71	1.77
helped me understand specific course content.		0.98		0.93	1.01
offered me personalized academic support.		0.82		0.69	1.03
helped me deal with administrative paperwork.		0.51		0.65	1.71
helped me deal with evaluation deadlines.			0.97	0.98	1.00
helped me deal with my academic load.	0.38		0.46	0.81	2.26

[2] SS loadings: MR1 = 3.40, MR2 = 2.3, MR3 = 1.66; Ordinal alpha: MR1=.95, MR2=.88; MR3 = .91

Figure 2 presents the distributions of the latent dimensions extracted by the EFA according to latent class of contact motives. Although some differences are observed there, ANOVA tests evidence that there were no statistically significant differences in any of the three dimensions.

Discussion

Our evaluation confirms that WTAs largely meet the needs of the students, fulfilling the main objective of interacting with students who require some type of support. Our results show that their interactions are not necessarily focused on specific needs and challenges, but rather on making students feel important and accepted within a course regardless of the nature of the situation they are going through. In that sense, this finding is aligned to prior work that has shown that acceptance

has positive effects on mental well-being, which in turn has positive effects on academic self-regulation [15].

In Latin America, and particularly Chile, student support programs are usually focused on two specific areas: biopsychosocial models and academic performance. In Chilean universities, 10 categories [21] of such initiatives have been identified, but never in an integrated manner. As for programs specifically related to well-being, they focus on the affective and emotional needs of students concerning self-care. In this sense, the WTA program stands out as unique in its kind, as it has a proactive approach towards students by providing a supporting peer directly in their classroom - and not from an external approach or in a preventive self-care mode. Throughout the support of a peer in the teaching staff, the program intends to favor the sense of belonging and mattering of students in a course regardless of the type of support they might require.

Considering that the number of students who participated in the survey was lower than expected, the findings of the present evaluation are limited to the studied context. Although the results provide relevant information for the evaluation of the program, further work may be needed to examine the worth and growth of the program. Not only this effort would allow us to focus on improving the program, but also generalizing lessons learned to other engineering schools.

Our study shows that the presence of the WTA in the classroom facilitates case resolution and provides students with emotional support and academic guidance to students. This may be relevant to other institutions who aim to enhance student well-being. This idea is supported by Dickson [22], who argues that considering undergraduate teaching assistants as collaborators rather than simply assistants.

The programs' scaling potential grows thanks to innovations implemented in this third cycle, such as the incorporation of the web-based platform for monitoring WTA interactions. In this sense, having a follow-up and reporting mechanism, where WTAs can enter the typology of their interactions with different students is fundamental to mediate, evaluate and make the teaching/learning processes more flexible. Also, the creation of a short training course was proposed so WTAs could gain skills by means of online and face-to-face instances, allowing to speed up the training process at an early stage of the semester. This can be replicated in other engineering schools or in other higher education institutions.

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