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## A Work Readiness Scale for Allied Health Graduates

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## A Work Readiness Scale for Allied Health Graduates

### Abstract

**Purpose:** The transition for allied health graduates from university to the workforce has been perceived to be difficult and overwhelming, leading to early attrition within healthcare professions. Work readiness is a crucial aspect of successful transition to the workforce, however, the elements of work readiness are not clearly defined. The purpose of this project was to refine the measurement of work-readiness in allied health graduates. **Method:** A 62-item Work Readiness Scale for Allied Health Professionals (WRS-AH), based on a work readiness scale for a generic population of graduates, was validated and refined using an exploratory factor analysis. **Results:** Participants were 245 Australian allied health professional graduates who completed the WRS-AH. An exploratory factor analysis supported a four-factor solution with domains (interpersonal capabilities, practical wisdom, personal attributes, and organisational acumen) similar to the original WRS. The final WRS-AH32 had 32 items, demonstrated good reliability, and explained 38% of the total variance. Using the WRS-AH32, on average, the Australian allied health graduates reported an overall work readiness score of 80% (SD 8) with scores highest for practical wisdom (Mean 90%, SD 8) and lowest for personal attributes (Mean 65%, SD 14). **Conclusions:** The WRS-AH32 confirms that work readiness is a multi-dimensional construct, reflecting that work within a dynamic, 21<sup>st</sup> century healthcare system requires more than just profession specific work competence. The WRS-AH may provide a more targeted approach to interventions to improve work readiness in future allied health professional graduates. **Recommendations:** The WRS-AH32 is a reliable scale to measure the perceived work readiness of allied health graduates as they transition from university to the workforce however ongoing validation is needed to establish construct validity.

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## Work Readiness Scale for Allied Health Graduates

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### ABSTRACT

**Purpose:** The transition for allied health graduates from university to the workforce has been perceived to be difficult and overwhelming, leading to early attrition within healthcare professions. Work readiness is a crucial aspect of successful transition to the workforce, however, the elements of work readiness are not clearly defined. The purpose of this project was to refine the measurement of work-readiness in allied health graduates. **Method:** A 62-item Work Readiness Scale for Allied Health Professionals (WRS-AH), based on a work readiness scale for a generic population of graduates, was validated and refined using an exploratory factor analysis. **Results:** Participants were 245 Australian allied health professional graduates who completed the WRS-AH. An exploratory factor analysis supported a four-factor solution with domains (interpersonal capabilities, practical wisdom, personal attributes, and organisational acumen) similar to the original WRS. The final WRS-AH32 had 32 items, demonstrated good reliability, and explained 38% of the total variance. Using the WRS-AH32, on average, the Australian allied health graduates reported an overall work readiness score of 80% (SD 8) with scores highest for practical wisdom (Mean 90%, SD 8) and lowest for personal attributes (Mean 65%, SD 14). **Conclusions:** The WRS-AH32 confirms that work readiness is a multi-dimensional construct, reflecting that work within a dynamic, 21<sup>st</sup> century healthcare system requires more than just profession specific work competence. The WRS-AH may provide a more targeted approach to interventions to improve work readiness in future allied health professional graduates. **Recommendations:** The WRS-AH32 is a reliable scale to measure the perceived work readiness of allied health graduates as they transition from university to the workforce however ongoing validation is needed to establish construct validity.

**Keywords:** allied health, education, employability, work readiness, scale development

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## INTRODUCTION

Work readiness and employability have become pivotal issues in education as the healthcare industry urges the Australian higher education sector to produce graduates that are ready for the workforce.<sup>1, 2</sup> Work readiness is a relatively new construct, defined as “the extent to which graduates are perceived to possess the attitudes and attributes that render them prepared or ready for success in the workplace.”<sup>3</sup> Work readiness is particularly important within a rapidly changing, dynamic healthcare sector, the largest employing industry in Australia.<sup>4</sup> Upon entering the workforce, healthcare graduates are expected to practice autonomously and have greater responsibility for patient outcomes than as healthcare students.<sup>5</sup> Additionally, to meet professional registration standards, healthcare graduates must also engage in lifelong learning, ongoing professional development, and be preparedness for full-time work.<sup>5</sup>

Healthcare graduates often struggle to be work ready. Graduates have reported feeling overwhelmed as they transition into the workforce particularly with time management, interpersonal skills, and clinical reasoning around complex patient presentations.<sup>6-9</sup> Employers note graduates are not prepared for the workplace in aspects including communication, an increased level of independence and responsibility, work-life balance, and understanding organisations and systems.<sup>10,11</sup> Stress, burnout, increasing workload, and decreasing support coupled with low job satisfaction, result in early attrition within healthcare professions, impacting on operational costs, patient outcomes, and workforce stability.<sup>12,13</sup> While most health professions degrees in Australia incorporate work integrated learning including clinical placements in which students are exposed to real world experience, they may not be exposed to all facets of work as a graduate. This may include realistic workloads, non-clinical work such as referral writing, participation in multidisciplinary team meetings, and exposure to clinical areas where students may work upon graduation.<sup>14,15</sup> Understanding the extent to which graduates perceive themselves to be work ready may help inform the development of effective strategies to reduce the stress and uncertainty associated with transitioning from university into the workforce, and improve graduate performance, success, and career advancement.<sup>16</sup> Qualifying and measuring work readiness is therefore an important step in supporting healthcare graduates' transition.

To date there has been limited empirical research measuring the construct of work readiness systematically. Caballero and colleagues<sup>3</sup> explored the characteristics and attributes of work readiness in a diverse range of graduates from a wide variety of programs which informed the development of the Work Readiness Scale (WRS). This 64-item scale identified four domains of work readiness: work competence, social intelligence, organisational acumen, and personal characteristics. This scale was revised for Australian graduate nurses which found a similar four-factor structure with revised scale items relevant to the graduate nurse setting.<sup>16</sup> Further qualitative exploration of the work readiness of graduate health professionals by Walker and colleagues<sup>10</sup> led to an Allied Health Work Readiness scale (WRS-AH), though it has not yet been validated within Australian allied health graduates. Therefore, the aims of the study were to:

1. Explore and refine the factor structure of the Work Readiness Scale for Allied Health Graduates (WRS-AH).
2. Measure the work readiness of a group of allied health graduates using the refined WRS-AH.

## METHODS

### Measure

The 62-item WRS-AH was developed through a project collaboration between two researchers at the University of Sydney who had known expertise and research in the field of work readiness within health professions and one researcher from Deakin University (AW) who was involved in the development of the original work readiness scale, which was funded by four health organisations in Australia.<sup>3</sup> Perceptions of the skills and strategies that constitute work readiness amongst allied health professional graduates in these health organisations was explored through a critical incident technique, similar to previous research in medical and nursing graduates.<sup>10</sup> A qualitative analysis was then conducted to identify themes in this population (A Walker, SV Nagarajan, P Orr, R Elphinstone, M Dunne, L McAllister, unpublished data, 2023). The research team with their experience and expertise used these themes to adapt and revise items in the original 64-item work readiness scale to establish a 62-item scale for the allied health professions (WRS-AH). It was licensed for use in this study by Deakin University with one author (AW) being a member of both teams in phase 1 and 2 of recruitment. Items were measured on a 10-point Likert scale (1= completely disagree and 10= completely agree) and both positively and negatively geared to reduce response acquiescence (17).

### Participants and Recruitment

Allied health graduates who had completed an entry-level allied health degree in Australia and worked in their field for 6 weeks to 3 years were eligible to participate in this study. This range was chosen as research has shown that significant learning and the influence of university degree occur within the first 2 to 3 years despite the setting<sup>6,18,19</sup>. Participants completed a survey which included the WRS-AH, along with the collection of demographic data such as gender, allied health discipline, and the state in which participants were working.

A broad and multi-faceted approach to recruitment was undertaken in two phases. Phase 1 was completed by the research team from Sydney University and Deakin University after the development of the WRS-AH scale, however, insufficient data was collected at that time for validation. Phase 2 was completed by the research team at Macquarie University in order to provide more data to be sufficient for analysis, and were responsible for the validation of the WRS-AH scale.

### **Phase 1**

The first wave of recruitment occurred over 12 months between 2017- 2018. The WRS-AH survey was distributed to potential participants by an appropriate person nominated within each health organisation who was independent of the research team to minimise coercion. Surveys were distributed either in hard copy, or via an email link to a Qualtrics survey. The first page of either hard copy or online version of the WRS-AH contained participant information. Consent was implied if the hard copy survey was completed and returned using a reply-paid envelope to a member of the research team (AW), or the online survey was completed and submitted. Ethical approval for this phase was granted by Metro South Health, Deakin University's and the University of Sydney's Human Ethics Committee.

### **Phase 2**

The second wave of recruitment in 2020 occurred across 4 months and involved the development of a national online survey conducted at Macquarie University targeting graduate physiotherapists, in which the 62-item WRS-AH was included. Potential participants were identified through academic colleagues of the research team, clinical partners of the participating higher education institutions, as well as through searching publicly available directories and websites such as the Australian Physiotherapy Association's "Find a Physio" website, and job websites seeking graduate physiotherapists. Participation was also promoted through advertisements via the Australian Physiotherapy Association, social media platforms, and emails were sent to university academics inviting them to email survey links to their graduating cohorts. Purposive and snowballing techniques were used to maximise response rates. Participants received an information sheet on the first page of the online survey regarding the WRS-AH, and consent was obtained prior to commencing the survey. Ethics approval for the distribution of the survey in Phase 2, and the analysis of all the WRS-AH was granted by Macquarie University's Human Ethics Committee.

### **Statistical Analysis**

All analyses were performed using IBM SPSS Statistics for Mac, version 27.0. Negatively phrased items were reverse scored to ensure statements were answered in the same conceptual direction prior to analysis. The Kaiser-Meyer-Olkin (KMO) test of sampling adequacy and Bartlett's test of sphericity ( $\chi^2$ ) were analysed to ensure the assumptions were met before conducting an exploratory factor analysis (EFA) with maximum likelihood estimation. Factors were rotated using direct oblimin due to the reported correlation between factors of the WRS<sup>3, 16</sup>. The scree plot and Kaiser-Guttman criterion (i.e., eigenvalues greater than 1) were used to determine the number of factors to be retained. Items in the questionnaire with loadings on a factor of greater than 0.40 were retained<sup>20</sup>. Items which loaded onto more than one factor were assigned to the factor with the highest loading only if there was a difference in loading of at least 0.20, otherwise they were removed from the scale<sup>21</sup>. Each factor required at least 3 items to load onto it to be considered stable<sup>22</sup>. Internal consistency of the WRS-AH overall and in each factor was determined using Cronbach's  $\alpha$ , with values above 0.7 considered acceptable for internal consistency<sup>23</sup>.

## **RESULTS**

### **Participants**

A total of 251 WRS-AH surveys were collected from graduate allied health practitioners, 142 from phase 1, and 109 responses after Phase 2 recruitment. Only WRS-AH surveys that had been fully completed were included in the analysis. Six responses were removed, with the remaining 245 responses included in the analysis. More than 12 disciplines were represented from 6 of Australia's 7 states and territories, with the majority being physiotherapists, and allied health practitioners working in the public system. Participant demographic data is presented in Table 1.

### **Factor Structure of WRS-AH32**

All assumptions of EFA were met (KMO = 0.851;  $\chi^2$  = 6418.03, df 1891,  $p$  < .001), indicating that EFA was appropriate for this sample (Appendix 1). According to the a priori criteria for factor retention, as described in the statistical analysis above, 32 items were retained which loaded onto 4 factors, explaining 38% of the variance in the data. All items retained on the pattern matrix were unique to each factor and there was no cross loading of items. Each of the four factors, labelled by the research team, had at least 3 items demonstrating factor stability. Internal consistency for the final 32-item scale was deemed suitable overall (Cronbach's  $\alpha$  = 0.90) and for each factor (Factor 1  $\alpha$  = 0.87; Factor 2  $\alpha$  = 0.84; Factor 3  $\alpha$  = 0.84; Factor 4  $\alpha$  = 0.70). Table 2 summarises the 4-factor structure of the refined WRS-AH (titled WRS-AH32) along with the loading of the items that measure each factor. The final 32-item scale was reviewed by the research team for contextual appropriateness and relevance with no changes to the scale deemed necessary.

**Table 1.** Participant demographics

Characteristic	Number (%) n=245
Age, years mean (SD)	26 (8)
	n=235
Gender, n male (%)	66 (28)
Allied Health Discipline, n (%)	
Physiotherapy	165 (67)
Occupational Therapy	16 (7)
Social Work	14 (6)
Speech Pathology	12 (5)
Radiography	6 (2)
Psychology	6 (2)
Radiation Therapy	5 (2)
Exercise Physiology	4 (2)
Podiatry	3 (1)
Dietetics	2 (1)
Audiology	2 (1)
Orthoptics	1 (<1)
Not stated	9 (4)
State, n (%)	
NSW/ ACT	146 (59)
QLD	51 (21)
VIC	40 (16)
WA	5 (2)
SA	2 (1)
Not stated	1 (<1)
Sector, n (%)	
Public	190 (78%)
Private	55 (22%)

NSW/ACT, New South Wales/ Australian Capital Territory; QLD, Queensland; VIC, Victoria; WA, Western Australia; AS, South Australia

**Table 2.** Factor loading for the Work Readiness Scale

Work Readiness Scale -Allied health 32 Items	Factor Loading			
	1 IC	2 PW	3 PA	4 OA
Others would say I am approachable	.803			
Developing relationships with people is one of my strengths	.783			
I can express myself easily	.725			
I communicate effectively with different patients who have different needs	.647			
Working in groups is one of my strengths	.645			
I am able to adapt and communicate with different people	.567			
I find I am good at reading other people's body language	.478			
One of my strengths is that I take a holistic approach to patient care	.429			
I look forward to the opportunity to learn and grow at work		.801		
I am eager to throw myself into my work		.739		
I am always working on improving myself		.649		
I believe my colleagues are a valuable resource for learning and development		.568		
It is important to respect patients and their families		.563		
I thrive on completing tasks and achieving results		.546		
I am passionate about my field of work		.490		
It's important to respect colleagues in a multidisciplinary team		.488		
I recognise when I need to ask for help		.446		
I see all feedback as an opportunity for learning		.434		

Work Readiness Scale -Allied health 32 Items	Factor Loading			
	1	2	3	4
	IC	PW	PA	OA
As a graduate listening and learning is as important as demonstrating your knowledge		.413		
I become overwhelmed by patients with complex needs			.775	
I feel that I am unable to deal with things when I have competing demands			.723	
I feel stressed when things are changed at short notice			.645	
I am sometimes embarrassed to ask questions when I am not sure about something			.594	
I become overwhelmed when patient behaviour is difficult to manage			.589	
I sometimes experience difficulty starting tasks			.578	
Approaching senior people at work is a weakness for me			.577	
I feel stressed when family members/carers disagree with patient care recommendations			.575	
I remain calm under pressure			-.421	
It is important to learn as much as you can about the context of the organisation you work in				.746
As an employee it's important to have a sound understanding of organisational processes and protocols				.640
An organisation's values and beliefs forms part of its culture				.528
I understand the clinical governance processes of my workplace				.406

Factor 1 accounted for 22.6% of the variance, contained 8 items and was labelled as the Interpersonal Capabilities domain, defined as the aptitude to develop professional relationships, and successfully work with multiple stakeholders.<sup>24,25</sup> Seen as essential for all health professionals, it requires the ability to interact and communicate both verbally and non-verbally, authentically, and creatively to produce a shared understanding, contextually and to a variety of groups including patients/clients, carers, and multi-disciplinary professionals.<sup>26</sup> Items included on this factor related to communication with different stakeholders and building relationships.

Factor 2 was labelled the Practical Wisdom domain, and defined as the making of deliberate, effective, and appropriate decisions with an understanding of the considerably complex and challenging health system in which these decisions are made.<sup>27-29</sup> The theoretical underpinning of practical wisdom is based in Aristotle's "phronesis", the complex interaction between theory and practice.<sup>30</sup> More than theoretical wisdom or intelligence, practical wisdom is based in action and for both the good of individuals, and the common good. It requires passion and curiosity, active learning, reflective practice, and understanding the limits of one's knowledge. This factor comprised 11 items that focused on perceived work-related standards and beliefs and accounted for 6.8% of the variance. Items included statements about an individual's desire for learning and development, passion for their profession, and the value and respect they have for their colleagues.

Nine items loaded onto Factor 3, which was labelled the Personal Attributes domain, accounting for 4.5% of the variance. Personal attributes are those characteristics that an individual brings to a workplace that impact on their work. These attributes include resilience, a growth mindset, maturity, flexibility and adaptability to complex environments.<sup>3,31</sup> Stress management and self-care aspects are also included within this domain. A lack of these attributes can lead to feelings of inadequacy and a lack of confidence in one's ability to work.<sup>32</sup> This factor related to managing complexity, being flexible and adaptable, and dealing with conflict.

The fourth factor was labelled the Organisational Acumen domain, defined as "the ability to understand and navigate governance, administration and culture in the internal and external environment, demonstrating commitment to the organisational mission."<sup>33</sup> It includes the ability to understand complex health systems in which an individual works, including administrative processes, workplace politics and organisational dynamics.<sup>32</sup> It can be as simple as knowing where equipment is stored, through to understanding complex processes such as the National Disability Insurance Scheme (NDIS) funding. It contained 4 items and explained 4% of the total variance. Items contained in this factor related to understanding health systems, and organisational processes and protocols.



### Measuring Work Readiness Using the WRS-AH32

Perceived work readiness was high with a mean total score of 80% (SD 8). Participants scored highly on the Practical Wisdom domain (mean = 90%, SD = 8), and scored lowest for the domain labelled Personal Attributes (mean = 65%, SD = 14). Perceived work readiness total and domain mean scores are presented in Table 3.

**Table 3.** Scores of the participants perceived work readiness using the WRS-AH32

WRS-AH32	Score (n= 245)
Total WRS (%) mean (SD) range	80 (8) 58-99
Interpersonal Capabilities (%) mean (SD) range	81 (10) 50-100
Practical Wisdom (%) mean (SD) range	90 (8) 62-100
Personal Attributes (%) mean (SD) range	65 (14) 32-99
Organisational Acumen (%) mean (SD) range	83 (11) 45-100

### DISCUSSION

The aim of this study was to explore and refine a work readiness scale for allied health graduates. An exploratory factor analysis was used to establish an internally consistent 4-factor scale with 32 items on self-rated work readiness to measure the perceived work readiness of allied health graduates. The 4 factors in this model broadly aligned with the factor structure of previous work readiness scale research, however items within each factor changed slightly reflecting the difference in work readiness within the allied health professions<sup>3,16</sup>. Therefore, we have recommended a slight change in the nomenclature of these factors to better represent these items for this population.

The four-factor model supports previous research that work readiness is a multidimensional construct, more than merely competence in profession-specific work.<sup>34</sup> The four factors identified by the EFA are all supported by current research for their role in contributing to work readiness. Furthermore, the perceived work readiness measured within the domains of this study aligned with the results of previous research which used other profession specific iterations of the work readiness scale, particularly in that the Personal Attributes was the lowest scoring domain.<sup>16,35,36</sup> Work readiness and employability within the health professions have been defined by how health professionals value their work, their professional commitment and wisdom in practice, with a growing emphasis on lifelong learning, and the expectation to continue professional development.<sup>5,27,34,37-39</sup> Allied health professionals are expected to use a person-centred care approach to their practice while working successfully within interprofessional healthcare teams. Thus, allied health professionals require effective communication, interpersonal, and teamwork skills.<sup>40</sup> Personal attributes such as resilience, flexibility and adaptability are also required to successfully navigate the demands of a rapidly changing and dynamic healthcare sector, and to prevent stress and burnout that have been attributed to the job dissatisfaction and early attrition of health care graduates.<sup>34,41,42</sup> Furthermore, the understanding of organisational values, processes, and structure has been recognised as an important aspect of the transition from student to new graduate where “role stress” can contribute to an overall poor readiness to work within the sector.<sup>43,44</sup> The ideals belonging in all four factors within the model are also confirmed by the professional standards of the allied health professions, recognising the depth and breadth of requirements for entry and continuing registration of members.<sup>45-47</sup>

Three domains presented within this study were similar to those previously established by Caballero and colleagues, with one item being defined differently.<sup>3</sup> This item, labelled as work competence, within previous research was defined as Practical Wisdom in this study.<sup>3,16</sup> In our study, items that included profession-specific knowledge and skills seen in previous scales were not retained, but items that were included comprised of concepts such as passion and drive, respect for team members, and the value of lifelong learning and development. These principles recognise that focusing solely on rational, technical, and evidence-based approaches is not sufficient for modern professional healthcare practice, where epidemiological, demographic, and societal influences have shifted work practices in order to improve efficiency, equity of access, and quality of patient-centred healthcare.<sup>48</sup> The use of an individual health practitioner’s knowledge, experiences and reflection are crucial in addressing the complexity, unpredictability, and ambiguity that encompass work in contemporary healthcare settings.<sup>27,37</sup> Furthermore, it suggests that work readiness is more than just the profession specific knowledge and skills expected by employers. The domain of Practical Wisdom encompasses the value of work, and a recognition of the opportunities for personal development, social connectedness, and meaningful purpose.<sup>34</sup>

Work competence, or profession-specific knowledge and skills removed by the factor analysis in this study, is likely still an important element of perceived work readiness. Graduates are familiar with the ongoing assessment of work competence throughout their degree. In fact, universities in the award of the degree, effectively assure graduates have the requisite profession-specific knowledge and skills to meet standards set by professional regulatory bodies or

associations. These professional standards are further assured by the external accreditation of university courses by the relevant accrediting authorities, which enable graduates to practice. While work competence and practical wisdom appear conceptually different, they are likely both to be important and the removal of specific work competence items may be why the model accounts for only 38% of the variance.

### Strengths and Limitations

The current 32-item Work Readiness Scale for Allied Health (WRS-AH32) explains 38% of the total variance, similar to the original work readiness scale but slightly lower than the acceptable variance of 50-60% within the humanities.<sup>3,49</sup> Work readiness is a relatively new but complex construct, highlighting the need to explore other aspects of work readiness that have not been accounted for by this scale, such as employers' perceptions of graduate work readiness. However, the goal of the current study was to conceptualise work readiness and define the dimensions in a clear operationalizable way. The analysis performed in this study has been exploratory, and therefore a confirmatory factor analysis must be completed with new data sets in order to verify the factor structure of the WRS-AH32<sup>20</sup>. While it can be argued that the process of scale validation is an ongoing process, the results of this study provide initial support for the construct validity and reliability of the WRS-AH32.<sup>3,50</sup>

The current analysis included 245 participants. As recruitment strategies were largely distribution through independent health organisation personnel (phase 1), university contacts and snowballing (phase 2), response rates were unable to be ascertained. Multiple methods of distributing the WRS-AH via both paper and online formats may have impacted the responses from participants. This sample size was considered adequate however recent researchers exploring EFAs have given less importance to sample size in favour of additional considerations including careful item inclusion and high communalities of variables both of which were considered by the research team.<sup>51,52</sup> These 245 participants, while including an array of allied health professionals, were largely physiotherapists (67%). While the physiotherapy profession is the one of the largest allied health groups within the Australian healthcare system, the large proportion of respondents from only one discipline may influence the results of the analysis. Furthermore, work readiness scores were presented as a whole, as there was insufficient representation of other allied health professionals to be useful to break these scores down further into each profession. Future work may include studying work readiness using the WRS-AH32 in each of these professions separately.

Using the WRS-AH32 may help graduates identify areas in which they perceive themselves to be less work ready. In turn, this also may help employers and graduates develop strategies to target these areas and improve graduate work readiness. The WRS-AH32 may also be used by universities to identify areas of improvement in curriculum to better prepare graduates for a successful transition to the workplace. Work readiness has been argued to involve a complex balance between all stakeholder expectations, and thus represents a shared responsibility between universities, graduates, and employers.<sup>34</sup> The WRS-AH32 may therefore aid all stakeholders in actively participating in the work readiness of allied health graduates.

### CONCLUSION

The results of the current study provide initial support for a 32-item work readiness scale that can be used to measure the perceived work readiness of allied health graduates as they transition from university to the workforce. The factors of this scale align with current research in work readiness and support the assertion that work readiness is a multi-dimensional construct beyond just competency in profession specific skills. The scale may aid in supporting all major stakeholders in identifying specific work readiness dimensions and improve the success of allied health graduates transitioning into the workforce.

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