# The change of concern in student assessment following Professional development training program among faculty staff at health collages in Princess Nourah Bint Abdulrahman University, KSA

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**ABSTRACT**

Professional development program was shown to change the stages of the concern in which staff might fall in. This research aims to measure the extent of the change regarding student's assessment among faculty staff at the College of Health and Rehabilitation Sciences (CHRS) at Princess Nourah Bint Abdulrahman University (PNU), Saudi Arabia. An intervention study design was implemented among 30 participants using stages of concern standard questionnaire. The questionnaire determines what stage the staff are likely in. Therese stages are awareness, Informational, Personal, management, consequences, collaboration, and refocusing. The stages are rated on 5 point a Likert scale. The intervention consists of training workshop conducted by virtual presentation due to COVID circumstances of the lockdown. The data were collected before and after the workshop through online questionnaire. Data were analysed using JMP software. Results showed that the intervention resulted in a definite shift from low to high involvement in each stage. Regarding information, 28% of low involved staff members became highly involved after the intervention. This percent increased to be 50% in personal and consequences, 40% in management and up to 75% in refocusing stages. Regarding the awareness that indicate lack of interest, 50% of those who were highly involved in that stage before the intervention became low involved after the intervention. However, none of these changes was statistically significant (p>0.05). In addition, there were significant moderate positive correlation between the mean score before and after the intervention in awareness and informational stages only (p≤0.05).

## 1. INTRODUCTION

Faculty members need to be equipped through faculty development program in order to face the rapid changes and shifting paradigms in medical education, health care delivery systems, and clinical practice [13]. Research conducted by Helen king to look at the experiences of academics for professional development found that the

concept of ongoing development or learning is considered as part of working lives, whether or not it is formally required evidence [3]. Examinations are common assessment methods used in higher education to measure student competency objectively regarding course-learning outcomes [12]. Faculty staff may then utilize the outcome to recognize misinterpretations in assessing learning destinations [6].

The Stages of Concern Questionnaire (SOCQ) developed in the 1970's by Hall and Loucks was originally used for the objective of evaluating teaching staff, and it was mainly intended to investigate their concerns and the emotional experience of change. SQCQ Used the framework provided by the Concerns Based Adoption model and it would increase the chances that the person(s) undergoing change will be positively impacted by professional development and systematic change [11]. The Stages of Concern consists of seven distinct categories: awareness, informational, personal, management, consequence, collaboration, and refocusing. Thus, questions arise such as: "Is the educator ready to make a change? What are the educator's personal thoughts on the program or practice? Is the educator uncomfortable with the change process all together?" These types of questions and feelings worked through to identify where the educator stands. The principal theoretical idea is that the further along in the seven Stages of Concern categories an educator moves, the more likelihood that an effective change will occur. The Stages of Concern Questionnaire is a thirty-five item questionnaire that functions to categorize and assess concerns surrounding potential change in programs and practices. The individual taking the questionnaire will fall into one of the seven categories above (awareness, informational, personal, management, consequence, collaboration, refocusing) by being scored on their responses to the questions found in the SOCQ. If an individual falls into a category such as collaboration or refocusing, they are likely to have less concern about the implementation of the new program or practice. On the other end of the spectrum, scores that fit into the informational or personal categories would indicate more concern from the individual regarding the change [2]. Hall and Hord used the beliefs of concerns research to address factors that inhibit change management. Concerns are defined as multifaceted combinations of feelings, thoughts, considerations, and preoccupations towards a certain task. The change is viewed as a process of concerns which moves through three levels: Self concerns derived by the need for awareness and information, Task concerns characterized by a preoccupation with questions of management, centering around effective use and learning to effectively "work" the innovation, Impact concerns develop when participants become more experienced, emphasis on questioning the broad and long-term impact of integrating the innovation. The Concerns Based Adoption Model methodology involving the stages of concern concept was used by many researches to assess professional development programs in order to identify the affective and behavioral change in individuals involved in implementation [8]. The Literature addressed this theory in measuring effectiveness of professional development, such as the study conducted at California state university which analysed data from pre-and post-workshop surveys, and a follow-up survey administered one year after the workshops showed positive impact of continuous professional development on faculty understanding, confidence, and attitudes [5]. Another study conducted at central Arkansas used the stages of concern questionnaire to ensure professional development at pre and in service level showed reduction in their perceived concern, and although they shared similar concern but areas of concerns were different [10]. Furthermore, a qualitative study examines the transformative learning of female educators as it relates to professional development in a higher education context. The results suggest that the transformative learning of the female educators was reflected in three themes: changes in personal and professional attitudes [4].

This study aimed to determine the effectiveness of the professional development-training program regarding written student assessment using stages of concern among staff members. We believe that professional development related to assessment ensures the best learning outcomes for the students as well as increases the satisfaction and effectiveness of staff in various aspects of their teaching which will eventually improve

student's outcome. Although the Concerns Based Adoption Model has been used widely in measuring the effectiveness of professional development programs, to date there has been little application of the model in student's assessment.

## 2. Material and methods

### 2.1 Study design and subjects
In the present study Pre and post, design was conducted at Princess Nourah Bint Abdulrahman University, health and rehabilitation college. Sample size was calculated using the equation for testing two dependent proportions, and it is based on two-sided hypothesis testing. The parameters used are proportion of pre (0.3) and post (0.8) workshop understanding, confidence and attitude taken from a sample of pre-test population. Alpha (a) significant level of 0.05, Beta (type 2 error) of 0.2 to be 33. Staff were recruited by convenient sampling, all faculty staff willing to participate were included, the ultimate sample size was 30 participants having a response rate of 91%.

### 2.2 Study instrument
Data was collected in August 2020 using an electronic standard questionnaire of stages concern, which consists of 35 questions set on 5 point a Likert scale. The Stages of Concern Questionnaire (SOCQ) is based on the Concerns Based Adoption Model (CBAM) framework, which has been used for measuring and facilitating change. The SOCQ provides a method of understanding where faculty staff fall on a scale that spans from the awareness stage (gaining interest in the intervention) through the refocusing stage (concentrating on new developments and interests beyond the current intervention. Participants can rate their experiences as follows: 0 (irrelevant), 1-2 (somewhat true of me now), or 3-4 (very true of me now). High numbers indicate high concern; low numbers, low concern; and 0 indicates very low concern or completely irrelevant items. These questions evaluate the affective experience of trainees and determine what stage they are likely in. There are 7 stages: Awareness (0), Informational (1), Personal (2), Management (3), Consequences (4), Collaboration (5), and Refocusing (6). The Stages of Concern was developed as part of the Concerns-Based Adoption Model in the 1970s and 1980s by a team of researchers at the Research and Development Centre for Teacher Education, the University of Texas at Austin, we will asks staff members to rate the extent to which they agree with various statements related to an innovation, such as how they will be able to manage all the requirements of the a training program [7].

### 2.3 Validity and reliability
The questionnaire has good reliability with a Cronbach's alpha of 0.64-0.83 and good test-retest reliability with a Pearson-r of 0.65-0.86 [11]. For this study, we also calculated reliability using a Cronbach's alpha of 0.81, which is consistent with Saunders.

### 2.4 The intervention
Training workshops for the staff on student's assessments methods were implemented via online methods. The change of the concern in student's assessments methods was assessed before and after the sessions. The training program focused on identifying learning objectives and purpose of student assessment, types of assessment and item analysis comparison of the assessment methods according to objectivity, validity, and specificity, preparing and analyzing multiple-choice and essay questions.

### 2.5 Data Management and Analysis
Data were analysed using JMP software version 14.2. For descriptive statistics, frequency tables were used to describe participants' demographics. For inferential statistics, McNamara test was used to compare the

degree of involvement in different stages pre and post the intervention. Wilcoxon signed rank test was used to compare the mean score of each stage pre and post the intervention in different levels of teaching experience. P value of less than 0.05 was considered significant.

## *2.6 Ethical Consideration*

An informed consent was taken from all participants. The participation is completely voluntary. All researchers respected the participant's autonomy and confidentiality. Privacy was assured and completely protected; no identifiers of the participants nor personal information will be collected.

The study obtained the ethical approval from the Institutional Review Board (IRB) of Princess Nourah Bint Abdulrahman University and Research Center.

## 3. Results

The sociodemographic characteristics are summarized in table (1). Half of the studied sample were more than 40 years old and only 3% were less than 30. Most of the participants were Non-Saudi (70%). Regarding their academic position, 70% were assistant professors and only 3% were professors. Half of the studied sample had more than 10 years of teaching experience and one fourth had less than 5 years.

**Table (1):** The sociodemographic characteristics of the studied sample

| Characteristics | No. (n=30) | % |
|---|---|---|
| Age | | |
| • Less than 30 years | 1 | 3.3 |
| • 30-40 years | 14 | 46.7 |
| • More than 40 years | 15 | 50 |
| Nationality | | |
| • Saudi | 9 | 30 |
| • Non-Saudi | 21 | 70 |
| Academic rank | | |
| • Lecturer | 4 | 13.3 |
| • Assistant professor | 21 | 70 |
| • Associate professor | 4 | 13.3 |
| • Professor | 1 | 3.3 |
| Years of teaching experience | | |
| • Less than 5 years | 8 | 26.7 |
| • 5-10 years | 6 | 20 |
| • More than 10 years | 16 | 53.3 |

Table (2) demonstrated stages of concern before and after intervention among the studied sample. After the intervention, the participants demonstrated a definite shift from low to high involvement in each stage. Stage 0 of the Stages of Concern is the Awareness stage, which is defined as a stage where the staff is not concerned with student assessments does not have a full concept of the assessment or is not interested in implementation. This study found 50% of those who were highly involved in that stage before the intervention became low involved after the intervention. Regarding stage 1 that is known as the Informational stage in which staff shows a beginning interest and a desire to know more about the assessment. In this study, 28% of low involved staff members in this stage before the intervention became highly involved after the intervention. This percent increased to be 50% in stages 2 (the personal stage. In which staff begin thinking about how the change will directly affect them and their educational effectiveness). In stage 3, That is the management stage (This is

where staff begin planning implementation and planning for resources and time needed for implementation) 40% of low involved staff members in this stage before the intervention became highly involved after the intervention. In stage 4, That is the consequence stage (This is where staff are concerned about how the change will directly influence students.) 50% of low involved staff members in this stage before the intervention became highly involved after the intervention. In stage 5, That is the Collaboration stage (This is where staff begin wanting to share the implementation with others and want to see how they compare to others in implementation) 25% of low involved staff members in this stage before the intervention became highly involved after the intervention. In stage 6, that is the Refocusing stage where staff reflect and see what worked and what could be made better, 75% of low involved staff members in this stage before the intervention became highly involved after the intervention. However, none of these changes was statistically significant (p>0.05).

**Table (2):** Stages of concern before and after intervention among the studied sample

| Stage of concern | Pre-intervention Involvement | Post intervention involvement | | Total | X2 of McNamar | P value |
|---|---|---|---|---|---|---|
| | | Low | High | | | |
| Stage 0 | Low | 16 72.73 | 6 27.27 | 22 | 0.4 | 0.4 |
| | High | 4 50.00 | 4 50.00 | 8 | | |
| Stage 1 | Low | 5 71.43 | 2 28.57 | 7 | 1.3 | 0.25 |
| | High | 5 21.74 | 18 78.26 | 23 | | |
| Stage 2 | Low | 3 50.00 | 3 50.00 | 6 | 1.6 | 0.2 |
| | High | 7 29.17 | 17 70.83 | 24 | | |
| Stage 3 | Low | 9 60.00 | 6 40.00 | 15 | 1.0 | 0.3 |
| | High | 10 66.67 | 5 33.33 | 15 | | |
| Stage 4 | Low | 4 50.00 | 4 50.00 | 8 | 0.0 | 0.1 |
| | High | 4 18.18 | 18 81.82 | 22 | | |
| Stage 5 | Low | 3 75.00 | 1 25.00 | 4 | 1.8 | 0.2 |
| | High | 4 15.38 | 22 84.62 | 26 | | |
| Stage 6 | Low | 1 25.00 | 3 75.00 | 4 | 0.2 | 0.6 |
| | High | 2 7.69 | 24 92.31 | 26 | | |

Table 3: shows the association of stages of concern with teaching experience. For those with less than 5 years of experience, there was a significant decrease after the intervention in the mean score of stage 1 (from 21.0 to 17.0, P<0.05). This decrease was accompanied by a non-significant increase in the mean score of stages 3,

4, 5 and 6 after the intervention. For those with more than 10 years of experience, they generally demonstrated non-significant slight decrease in the mean score in all stages except stages 0 and 4.

**Table 3:** The association of stages of concern before and after the intervention

| Stage | Teaching Experience | Mean score before the intervention | Mean score after the intervention | Wilcoxon signed rank test | Sig. (2-tailed) |
|---|---|---|---|---|---|
| Stage 0 | Less than 5 years | 10.2 | 11.6 | 8.0 | 0.3 |
| | 5-10 years | 12.4 | 11.1 | 2.5 | 0.7 |
| | More than 10 years | 13.3 | 14.2 | 3.5 | 0.8 |
| Stage 1 | Less than 5 years | 21.0 | 17.0 | -15.5 | 0.03* |
| | 5-10 years | 16.9 | 17.3 | 1.00 | 1.00 |
| | More than 10 years | 19.9 | 18.4 | -16.6 | 0.5 |
| Stage 2 | Less than 5 years | 18.5 | 16.8 | -5.0 | 0.5 |
| | 5-10 years | 24.2 | 22.5 | -4.0 | 0.6 |
| | More than 10 years | 22.3 | 20.2 | -19.5 | 0.3 |
| Stage 3 | Less than 5 years | 8.7 | 12.9 | 11.0 | 0.1 |
| | 5-10 years | 17.0 | 16.2 | -0.5 | 1.0 |
| | More than 10 years | 20.0 | 15.9 | -29.0 | 0.2 |
| Stage 4 | Less than 5 years | 18.0 | 18.4 | -2.5 | 0.9 |
| | 5-10 years | 19.7 | 20 | -0.5 | 0.9 |
| | More than 10 years | 22.7 | 20.8 | -18.0 | 0.4 |
| Stage 5 | Less than 5 years | 22.8 | 25.6 | 6.0 | 0.3 |
| | 5-10 years | 14.2 | 27.9 | 5.0 | 0.4 |
| | More than 10 years | 22.8 | 21.1 | -12.5 | 0.5 |
| Stage 6 | Less than 5 years | 20.9 | 22.8 | 7.5 | 0.3 |
| | 5-10 years | 22.5 | 23.3 | 2.0 | 0.8 |
| | More than 10 years | 23.6 | 21.6 | -21.5 | 0.3 |

Table 4 shows the correlation of the stages before and after intervention. There were significant moderate positive correlation between the mean score before and after the intervention in two stages: stage 1 and stage 2 only ($p \leq 0.05$). Other stages demonstrated no significant correlation between the mean score before and after the intervention. The mean score of stage 1 after the intervention can be successfully predicted using the mean score before the intervention of that stage ($p < 0.05$).

**Table (4)** Correlation between pre and post mean score of each sage from stage 0 to stage 6

| Stages | Stage 0 | Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 | Stage 6 |
|---|---|---|---|---|---|---|---|
| Stage 0 Correlation Sig (2-tailed) | 0.2 0.3 | | | | | | |
| Stage 1 Correlation Sig (2-tailed) | | 0.49 0.005** | | | | | |
| Stage 2 | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Correlation Sig (2-tailed) | | | 0.36 0.05* | | | | |
| Stage 3 Correlation Sig (2-tailed) | | | | 0.04 0.7 | | | |
| Stage 4 Correlation Sig (2-tailed) | | | | | 0.2 0.1 | | |
| Stage 5 Correlation Sig (2-tailed) | | | | | | 0.3 0.1 | |
| Stage 6 Correlation Sig (2-tailed) | | | | | | | 0.3 0.06 |

Table 5: shows Prediction of the change in stage 1 after the intervention using linear regression model. It is evident that we can predict if staff change their concern from no interest to being interested after the intervention using the regression model.

**Table 5:** Prediction of the change in stage 1 after the intervention using linear regression model

| Term | Estimate | Std Error | t Ratio | Prob>|t| |
|---|---|---|---|---|
| Intercept | 11.001328 | 2.481484 | 4.43 | 0.0001* |
| pre stage 1 | 0.3477214 | 0.116189 | 2.99 | 0.0057* |

Figure (1): Shows that the mean score of involvement in each stage among different academic ranks The mean score of involvement in each stage among different academic ranks of participants was demonstrated in figure 3. The mean is generally increasing with the increase in the academic rank in all stages except stage 0. The involvement in sage 0 was higher among lecturer than assistant and associate professors.
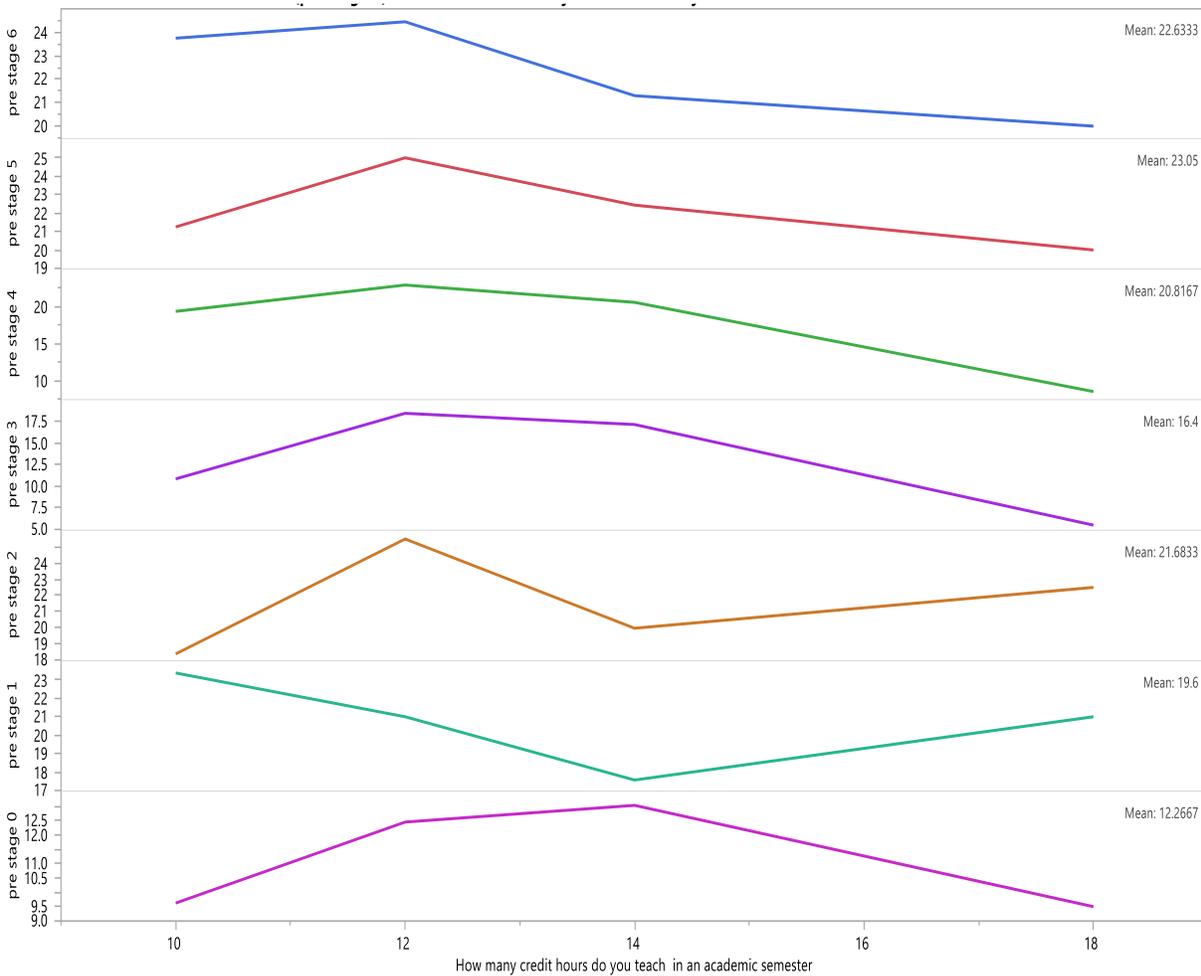
## 4. Discussion

The aim of this article is to describe and examine the use of the Concerns Based Adoption Model as a framework for the assessment of professional development in student's assessment in Health College at princess Nourah University. The CBAM consists of three diagnostic dimensions: the Innovation Configuration, the Levels of Use, and the Stages of Concern. The implementation of the Concerns Based Adoption Model in this study focuses on the Stages of Concern Questionnaire but exploring the other two dimensions is necessary to understand a complete overview of the appropriate application and utilization of this model. Often times, educators spend a considerable amount of time learning new or evolving school programs and practices, but they are left lacking when it comes to the practical application. Educators are often taught what a program is. They are not taught what it looks like carried out in real time. The diagnostic area of Innovation Configuration addresses this by providing expectations, descriptions, and guides for each individual person involved in the program. By using this tool, every educator that the program affects is able to see a clear depiction of what the program looks like from their particular stance The stages of the concern questionnaire is used as a method of identifying how teaching staff respond to professional development programs. This information can be used to adjust the student assessment system in the faculty, as well as to recommend further structure and models of professional development that meet the needs of individual teachers in their busy schedule. In this study, the use of the model of the Stages of Concern Questionnaire which provides insight into how change has been experienced because of the professional development program and to what degree changed practice has been implemented by individuals.

The example findings indicate that staff has definite shift from low to high involvement which is shown in different degree for stages .in stage 1 which is the awareness, 28% of low involved staff members became highly involved after the intervention. This percent increased to be 50% in stages 2 and 4, 40% in stage 3 and up to 75% in stage 6. Regarding stage 0 that indicate lack of interest, 50% of those who were highly involved in that stage before the intervention became low involved after the intervention. However, none of these changes were statistically significant (p>0.05). at routine, refined and integrated levels of use: learning has been transferred into practice. Results for the stages of concern also reveal that 74% of the group are concerned with collaborating on issues ranging from gaining more information about use and managing time and resources to further investigating the impact that innovations have on their students' learning. These types of findings are particularly helpful in assessing the progress of change as a result of professional development. In addition, and arguably more importantly in a systemic approach to professional development, knowledge of concerns and levels of use can usefully inform the design and provision of ongoing support or intervention strategies targeted to meet the specific needs of both individuals and the overall group [2]. For example, the findings indicate that the majority of the participants were interested in sharing their experiences; this knowledge was used by developers to establish a 'community of practice', which thereby met the group's most immediate need: opportunities for further collaboration. The findings generated in a study exploring teachers' concerns and beliefs about implementation of a mathematics program in school, supports the basic ideas surrounding the assumptions made about the importance of change and the concerns that come along with it. The researchers found that teachers who were more comfortable with pre-reform approaches (programs and practices currently in place), tended to be more critical of the new reform and their capacity to handle it. It was also found that they were more anxious about the impact the reforms would have on student learning. This suggests that reforms may fail if teachers' beliefs about this do not improve. Change and reform are associated with raising teacher quality, improving student learning, student achievement, and student preparedness, thus it is important that teachers receive the systematic and sustained support to move out of their comfort zone and implement a program or practice.

## 5. conclusion

Professional development should address the specific concerns of faculty who are in the process of implementing a new or different intervention. These concerns when responding to it, Professional development can have a potentially stronger impact on student outcomes The professional development program produced a definite shift from low to high involvement in all stages with significant moderate positive correlation between the mean score before and after the intervention in two stages: stage 1 and stage 2.

## 6. Strength and limitation of the Study

This study was limited to identify the effectiveness professional development regarding student's assessments at health and Rehabilitation College at princess Nourah University in SA. Using the SOCQ will help mangers understand how faculty staff fall on a range of concern, which facilitate implementation of the change. Moreover, CBAM SOCQ can be used to ensure that professional development activities such as student's assessment will lead to increase the possibilities that student success will be positively impacted Thus, the theory will help Princess Nourah University administrators to design professional development based on the types of concerns science faculty have regarding the new change. These sessions help in decreasing the staff 'concerns in order for them to be able to adopt new structure and organization of student's assessment.

Conflicts of interest: There are no conflicts of interest.

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