The dataset for the stages of concerns of public-school teachers towards the use of e-learning platform: Malaysian context

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Abstract

This dataset contains demographic information of 355 respondents and a validated 32-items Stages of Concerns Questionnaire (SoCQ). The SoCQ questionnaire was developed based on the Concerns-Based Adoption Model (CBAM) which measures seven stages of concerns as the variables. They are unconcerned, informational, personal, management, consequence, collaboration and refocusing. The data was firstly tested with normality, followed by validity checking using confirmatory factor analysis (CFA). It is useful for policy makers and stakeholders to have a thorough understanding about teachers’ concerns on the use of the e-learning platform and thus, design suitable interventions to smoothen the adoption process of using the technology. This set of data could be used in a multi-racial developing country for more complex analyses.

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1. Data description

This dataset contains variables' definition (Table 1), different versions of the instrument throughout the validation process, a manual to interpret the stages of concerns [2] and a 32-items
Stages of Concerns Questionnaire (SoCQ). The SoCQ was distributed to all the public-school teachers that responded to the email sent out by the researcher. The values of Skewness and Kurtosis were calculated for the normality test. Then, the convergent and discriminant validity of the instrument is established by Covariance-Based Structural Equation Modelling (CB-SEM). The data were accessible at https://data.mendeley.com/datasets/ztgbtpn36p/1. Fig. 3 shows the final fitted model.

2. Experimental design, materials, and methods

2.1. Concerned-based adoption model (CBAM)

There are three diagnostic dimensions in Concerns-Based Adoption Model. They are (i) stages of concerns, (ii) level of use, and (iii) innovation configurations. In this study, the SoCQ was adapted and distributed to the public schools’ teachers. The stages of concerns were initially conceptualized as three phases and user would move from one phase to another. The phases are: (i) unconcerned, (ii) Self-
concerned, and (iii) concern with students [3]. The stages of concerns were then developed into different categories of concerns [4] and finally the revised stages of concerns (Table 1).

2.2. Normality test and confirmatory factor analysis (CFA)

After the data collection, normality test (Table 2) was conducted. Then the data is then tested for model fit. The initial order of measurement model analysis (Fig. 1) showed that \( \chi^2 \) (443, \( N = 355 \)) = 1260.889, \( p < .000 \), \( \chi^2/DF = 2.846 \), GFI = 0.816; AGFI = 0.781, CFI = 0.905; IFI = 0.906, RMSEA = 0.072. The model is considered unfit because the value of TLI is less than the recommended 0.900.

Item U1 was then removed due to low loading factor of 0.359 (Table 3) and also based on the modification indices recommended by AMOS (Fig. 2). Then, some of the error terms that belong to the same factor were covaried to see if the data fits the model. The final fitted model (Fig. 3) has all item loadings greater than 0.60 (Table 3), with \( \chi^2 \) (410, \( N = 355 \)) = 1017.733, \( p < .000 \), \( \chi^2/DF = 2.482 \), GFI = 0.843; AGFI = 0.810, CFI = 0.928; IFI = 0.929, RMSEA = 0.065.

These suggest that the data fits the model well based on the recommendations values (Table 4) of CMIN/df [5,6], GFI [7,8], CFI [6,9] and RMSEA [10].

2.3. Reliability, convergent validity and discriminant validity

The values of composite reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV) and the loadings of the constructs (Table 5) were calculated using “Master Validity Tool” – an AMOS plugin.

The reliability of constructs with values between 0.82 and 0.93 are said to be satisfactory [11]. Since the values of AVE of all stages are greater than 0.5 and the AVE are all lesser than CR, convergent validity of the items is established [12,13]. The values of MSV are all found to be lesser than AVE (Table 5) and values at the square root of AVE (values at the diagonal) are higher than the correlation, showing the discriminant validity of the instrument (Table 6) [13,14].

Table 1
7 Stages of Concerns and its definition.

| Stage     | Definition                                                                 |
|-----------|----------------------------------------------------------------------------|
| Unrelated | User is not concerned or has little involvement with the technology.       |
| Self      | User knows about the technology but is unconcern about how the technology relates with his/her role. It might be another indication that the user is interested in understanding more about the technology. |
| Personal  | User knows about the technology and its requirement, and the user is aware about his/her effort to use the technology. The user begin to concern about his/her relationship with the technology. |
| Task      | User now focuses the on the process of using the innovation and how can the innovation affect his/her task. |
| Impact    | User is now concern about how the technology could impact his/her students. |
| Collaboration | User begins to concern about working or using the innovation together other colleagues. |
| Refocusing| The user is willing to learn more about the innovation.                    |

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Fig. 1. Initial order of measurement model.
Fig. 2. Measurement Model after removal of item U1.
Fig. 3. Final model.
Table 2
Values of Skewness and Kurtosis of all items.

| Item | Skewness | Kurtosis | Item | Skewness | Kurtosis |
|------|----------|----------|------|----------|----------|
| U1   | .007     | -.611    | M4   | -.067    | -.154    |
| U2   | -.379    | -.626    | M5   | -.127    | -.310    |
| U3   | -.010    | -.606    | CS1  | -.160    | -.191    |
| U4   | -.324    | -.404    | CS2  | -.026    | .021     |
| I1   | -.001    | -.146    | CS3  | .006     | .153     |
| I2   | -.212    | -.199    | CS4  | -.036    | -.072    |
| I3   | .009     | -.208    | CS5  | -.090    | .040     |
| I4   | -.185    | .101     | CO1  | .441     | -.147    |
| P1   | -.088    | -.450    | CO2  | .045     | -.302    |
| P2   | -.165    | -.236    | CO3  | -.050    | -.028    |
| P3   | -.262    | .139     | CO4  | .038     | .068     |
| P4   | -.327    | .282     | CO5  | -.131    | -.097    |
| P5   | -.063    | -.588    | R1   | -.192    | -.286    |
| M1   | -.128    | -.210    | R2   | .011     | -.377    |
| M2   | .073     | -.659    | R3   | -.016    | -.391    |
| M3   |          |          | R4   | .045     | -.420    |

Table 3
Loadings of items.

| Stages of Concerns | Items | Before Removal of Item U1 (Estimate) | After Removal of Item U1 (Estimate) | After Covaried Error terms (Estimate) |
|--------------------|-------|--------------------------------------|--------------------------------------|---------------------------------------|
| Unconcerned Stage  | U1    | 0.359                                | Removed                               | Removed                               |
|                    | U2    | 0.887                                | 0.888                                 | 0.886                                 |
|                    | U3    | 0.723                                | 0.721                                 | 0.72                                  |
|                    | U4    | 0.91                                 | 0.915                                 | 0.917                                 |
| Informational Stage| I1    | 0.834                                | 0.834                                 | 0.834                                 |
|                    | I2    | 0.866                                | 0.867                                 | 0.866                                 |
|                    | I3    | 0.872                                | 0.872                                 | 0.871                                 |
|                    | I4    | 0.85                                 | 0.85                                  | 0.85                                  |
| Personal Stage     | P1    | 0.879                                | 0.879                                 | 0.878                                 |
|                    | P2    | 0.831                                | 0.831                                 | 0.83                                  |
|                    | P3    | 0.848                                | 0.848                                 | 0.848                                 |
|                    | P4    | 0.828                                | 0.828                                 | 0.828                                 |
|                    | P5    | 0.872                                | 0.872                                 | 0.873                                 |
| Management Stage   | M1    | 0.862                                | 0.862                                 | 0.808                                 |
|                    | M2    | 0.903                                | 0.903                                 | 0.858                                 |
|                    | M3    | 0.828                                | 0.828                                 | 0.845                                 |
|                    | M4    | 0.74                                 | 0.74                                  | 0.76                                  |
|                    | M5    | 0.832                                | 0.832                                 | 0.854                                 |
| Consequence Stage  | CS1   | 0.791                                | 0.791                                 | 0.767                                 |
|                    | CS2   | 0.811                                | 0.811                                 | 0.79                                  |
|                    | CS3   | 0.806                                | 0.806                                 | 0.803                                 |
|                    | CS4   | 0.886                                | 0.886                                 | 0.893                                 |
|                    | CS5   | 0.833                                | 0.833                                 | 0.843                                 |
| Collaboration Stage| CO1   | 0.669                                | 0.669                                 | 0.633                                 |
|                    | CO2   | 0.819                                | 0.819                                 | 0.798                                 |
|                    | CO3   | 0.806                                | 0.806                                 | 0.806                                 |
|                    | CO4   | 0.848                                | 0.848                                 | 0.854                                 |
|                    | CO5   | 0.634                                | 0.634                                 | 0.646                                 |
| Refocusing Stage   | R1    | 0.607                                | 0.607                                 | 0.606                                 |
|                    | R2    | 0.805                                | 0.805                                 | 0.804                                 |
|                    | R3    | 0.792                                | 0.792                                 | 0.792                                 |
|                    | R4    | 0.707                                | 0.707                                 | 0.709                                 |
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Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.dib.2020.105230.

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