

Using a Digital Learning Platform to Enhance Wellbeing Education for Preservice Teachers in a Global Context

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Research Motivation

- Teacher preparation programs (TPPs) must prepare effective teachers for meaningful careers and success in today's diverse classrooms (UK Government, 2016; U.S. Department of Education, 2011)
- Advances in educational technology benefit TPPs by increasing access to develop global awareness, collaborative problem-solving skills, and self-directed learning experiences (Groff, 2013)
- Limited research on how educational technology can promote preservice teachers' experiences understanding and evaluating their wellbeing

Context

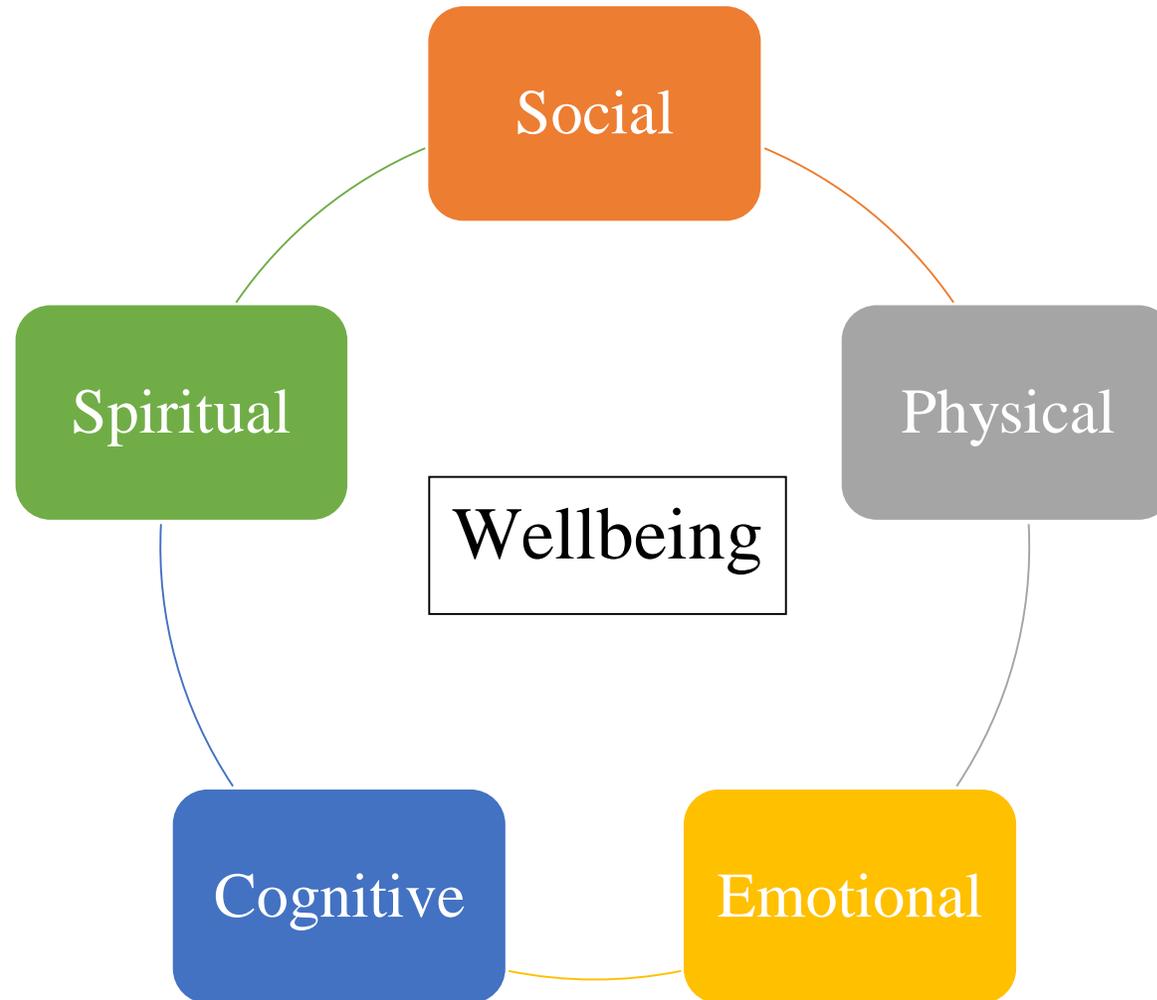
- This collaborative project explores the use of a digital learning platform to initiate an online learning community between international TPPs to educate preservice teachers on the dimensions of wellbeing.
- Collaborators:
 - TPPs from Fordham University and St. Mary's University
 - Birkbeck Knowledge Lab

Research Questions

- How is a digital learning platform used by TPPs in international collaboration to educate preservice teachers on the dimensions of wellbeing for purposes of developing professional wellness?
- What are preservice teachers' experiences using features of a digital learning platform to understand and self-assess wellbeing?
- How do preservice teachers' interact with a digital learning platform to understand and self-assess wellbeing?

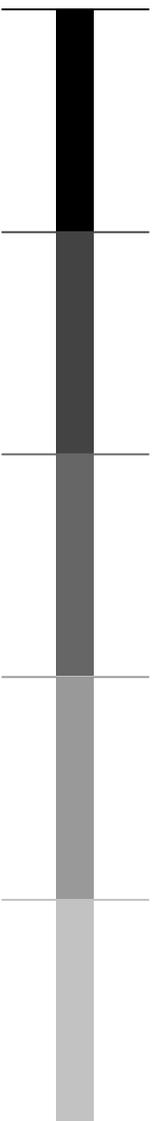


Dimensions of Wellbeing



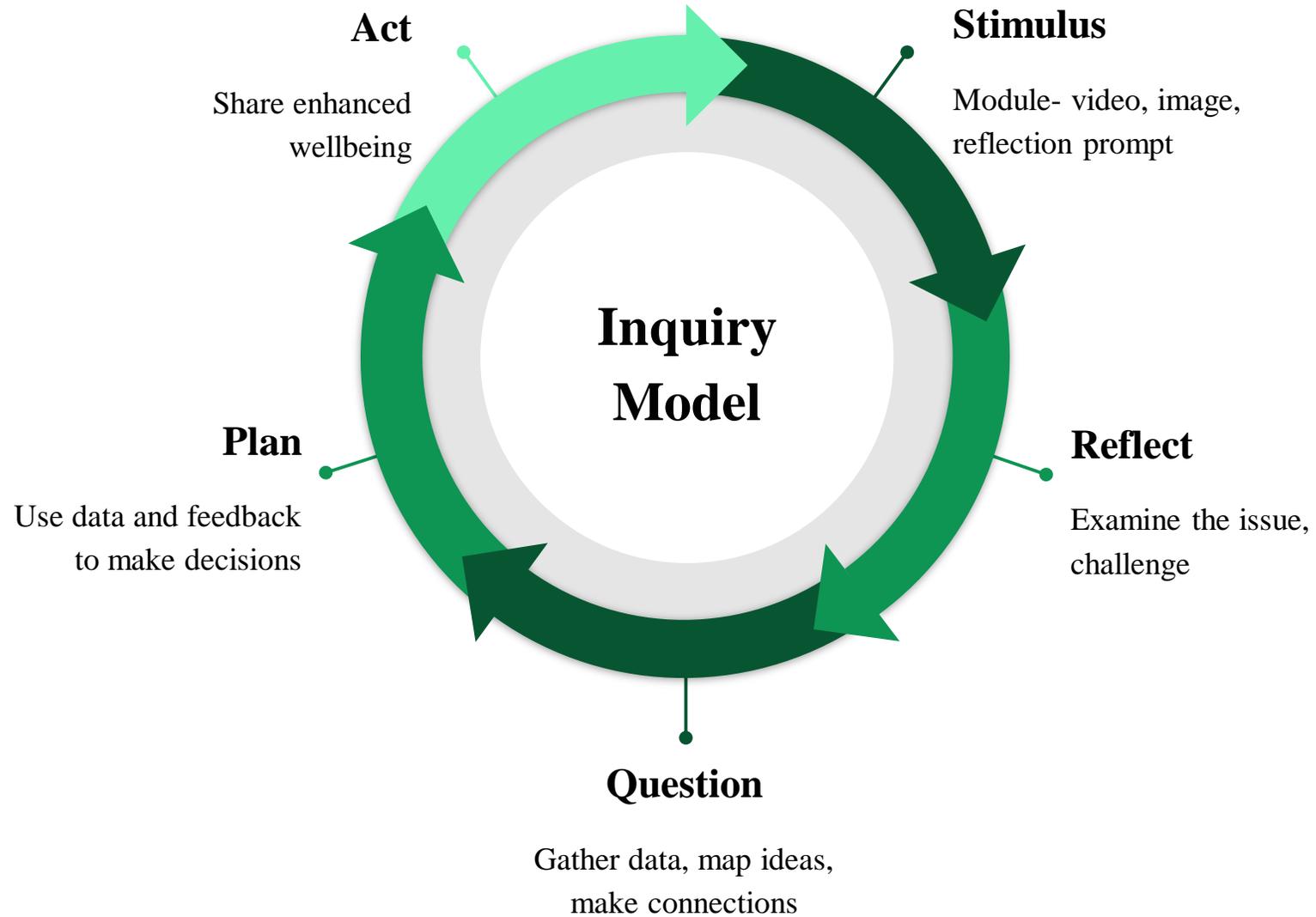
Implementation Plan

- Each month a dimension of wellbeing will be introduced and explored by the preservice teachers through digital material (e.g., readings, video, images, prompts) posted on the platform.

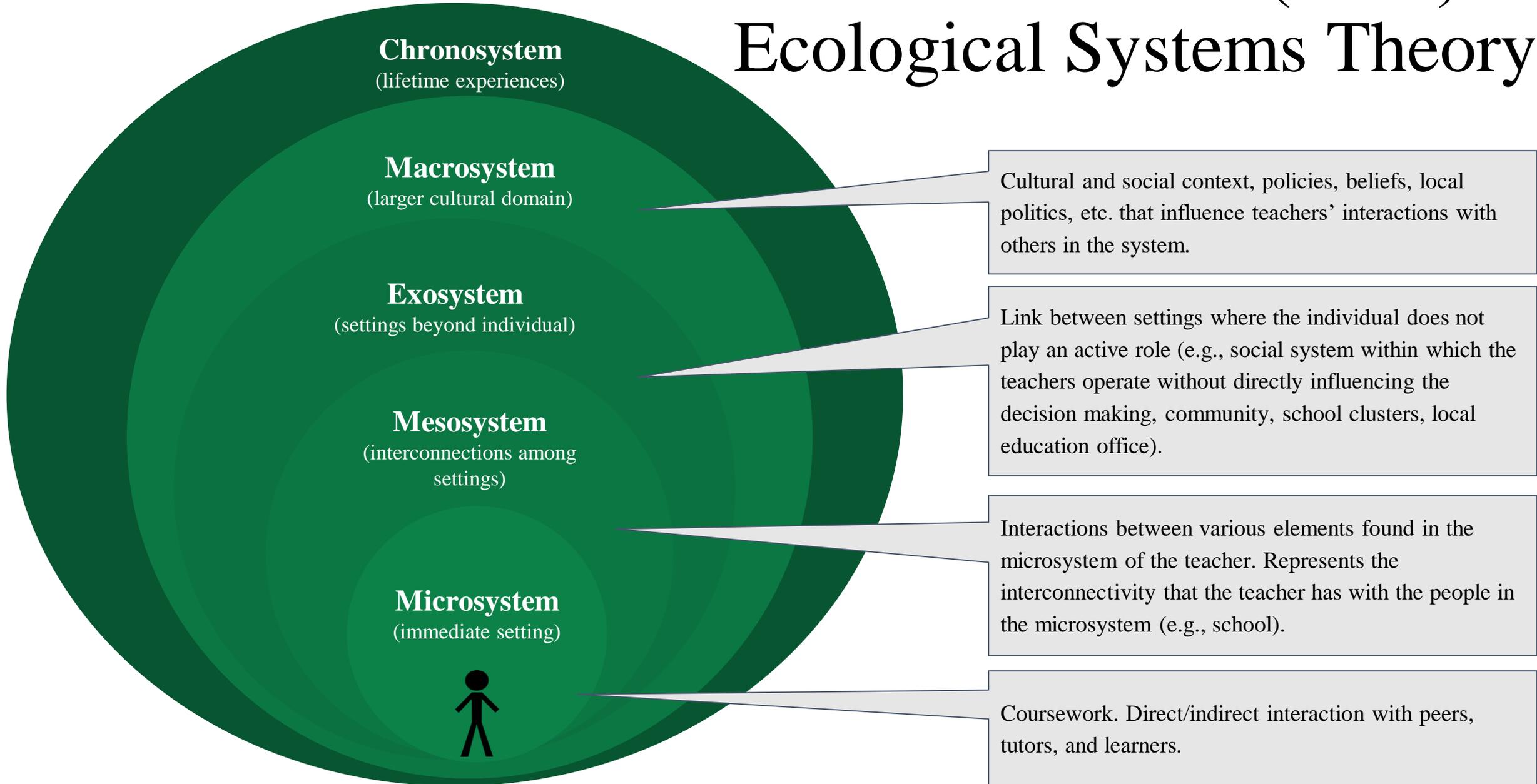


Oct. 2019	Social Teacher Autobiography; blogs to introduce oneself and develop supportive relationships with peers
Nov. 2019	Physical “A Piece of the Pie” inventory assessment of health (e.g., physical activity, nutrition, sleep)
Dec. 2019	Emotional “What Went Well” blog to share positive events and give one another encouragement
Jan. 2020	Cognitive “Beliefs” assessment to identify growth vs. fixed mindsets
Feb. 2020	Spiritual Discover a sense of purpose and satisfaction in one’s work through job satisfaction survey or simulation/game play of situation and satisfaction assessment

Inquiry Model



Bronfenbrenner's (1978) Ecological Systems Theory



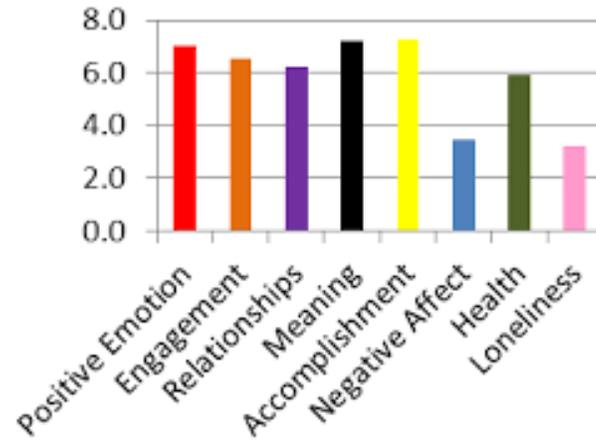
Methods of Data Collection

Data will be collected using the following mixed methods:

- Pre-experience attitudinal survey of all participants (Sept. 2019) using adapted Butler & Kern's (2016) PERMA-Profiler
- Monthly engagement with each dimension through the learning platform (e.g., wall/blog/images/written response)
- Final activity/assessment: an essay or future practice commitment
- Post experience attitudinal survey of all participants (April 2019) using adapted Butler & Kern's (2016) PERMA-Profiler
- Follow-up survey (18 month point) and collaborators' reflections on professional identity and wellness (focus group interviews)
- Data science techniques

PERMA-Profiler Survey

#	Label	Question	Response Anchors
Block 1	A1	How much of the time do you feel you are making progress towards accomplishing your goals?	0 = never, 10 = always
	E1	How often do you become absorbed in what you are doing?	
	P1	In general, how often do you feel joyful?	
	N1	In general, how often do you feel anxious?	
	A2	How often do you achieve the important goals you have set for yourself?	
Block 2	H1	In general, how would you say your health is?	0 = terrible, 10 = excellent
Block 3	M1	In general, to what extent do you lead a purposeful and meaningful life?	0 = not at all, 10 = completely
	R1	To what extent do you receive help and support from others when you need it?	
	M2	In general, to what extent do you feel that what you do in your life is valuable and worthwhile?	
	E2	In general, to what extent do you feel excited and interested in things?	
	Lon	How lonely do you feel in your daily life?	
Block 4	H2	How satisfied are you with your current physical health?	0 = not at all, 10 = completely
Block 5	P2	In general, how often do you feel positive?	0 = never, 10 = always
	N2	In general, how often do you feel angry?	
	A3	How often are you able to handle your responsibilities?	
	N3	In general, how often do you feel sad?	
	E3	How often do you lose track of time while doing something you enjoy?	
Block 6	H3	Compared to others of your same age and sex, how is your health?	0 = terrible, 10 = excellent
Block 7	R2	To what extent do you feel loved?	0 = not at all, 10 = completely
	M3	To what extent do you generally feel you have a sense of direction in your life?	
	R3	How satisfied are you with your personal relationships?	
	P3	In general, to what extent do you feel contented?	
Block 8	hap	Taking all things together, how happy would you say you are?	0 = not at all, 10 = completely



Example participant's profile

Scores are calculated as the average of the items comprising each factor:

Positive Emotion:	$P = \text{mean}(P1, P2, P3)$
Engagement:	$E = \text{mean}(E1, E2, E3)$
Relationships:	$R = \text{mean}(R1, R2, R3)$
Meaning	$M = \text{mean}(M1, M2, M3)$
Accomplishment	$A = \text{mean}(A1, A2, A3)$
Overall Well-being	$\text{PERMA} = \text{mean}(P1, P2, P3, E1, E2, E3, R1, R2, R3, M1, M2, M3, A1, A2, A3, \text{hap})$
Negative Emotion:	$N = \text{mean}(N1, N2, N3)$
Health =	$H = \text{mean}(H1, H2, H3)$
Loneliness	$\text{Lon} \text{ (single item)}$

(Butler & Kern, 2016)

Data Science Techniques

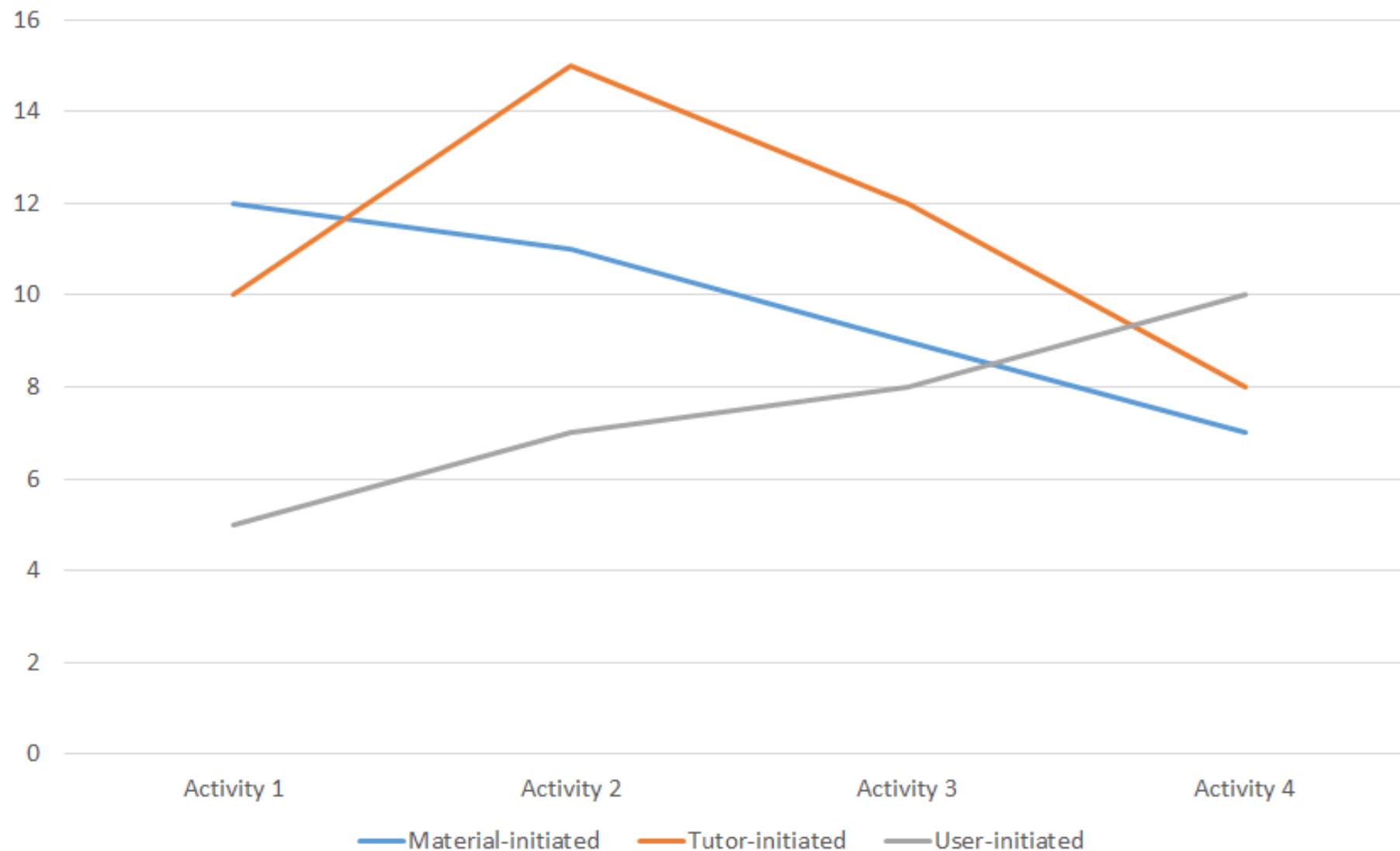
Various types of data

- Demographic data (person)
- Personal preferences (person)
- School context (micro)
- Community groups/communities of practice (micro)
- Peers/parents interactions/feedback (micro)
- Use of support/guidance, e.g. in the use of TEL (micro)
- Interaction data and reflections undertaking courses in the learning platform (micro)
- Work-life balance (meso)
- Trust (meso)
- Teacher evaluations, professional development pathways (exo)
- Level of influence in decision making (exo)
- Political agenda/policies (macro)
- Perceptions of teachers' role and expectations from them are context depended (macro)
- Lifetime experiences/changes/events/social context influence on lifelong learning choices, professional development, knowledge transfer (time)

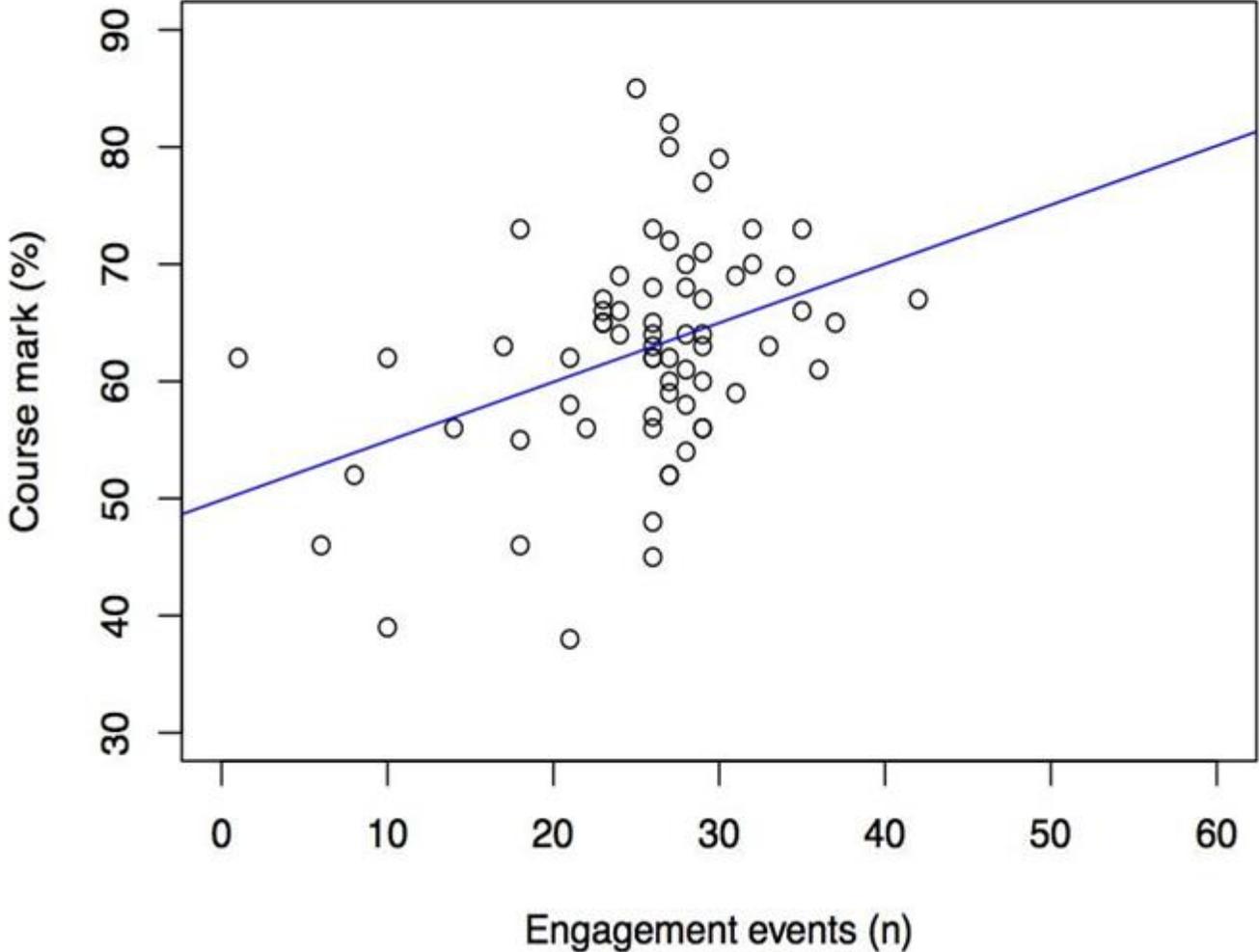
Data Analysis

- The platform will capture users' actions and interactions as they work through the course on wellbeing c.f. earlier points on interaction data and reflection, feedback from tutors and peers
- This data will be analysed using techniques such as Regression Analysis to investigate correlations between participants' engagement with the course and various aspects of the course content and participants' performance (relevant to the cognitive dimensions of wellbeing)
- Engagement events may be:
 - Material-initiated (events that result from prompts within course materials, e.g. quizzes, polls, open discussions)
 - Tutor-initiated (replies to forum discussion topics initiated by course tutors)
 - User-initiated (forum discussion topics initiated by individual users)

Tracking a User's Engagement Over Time



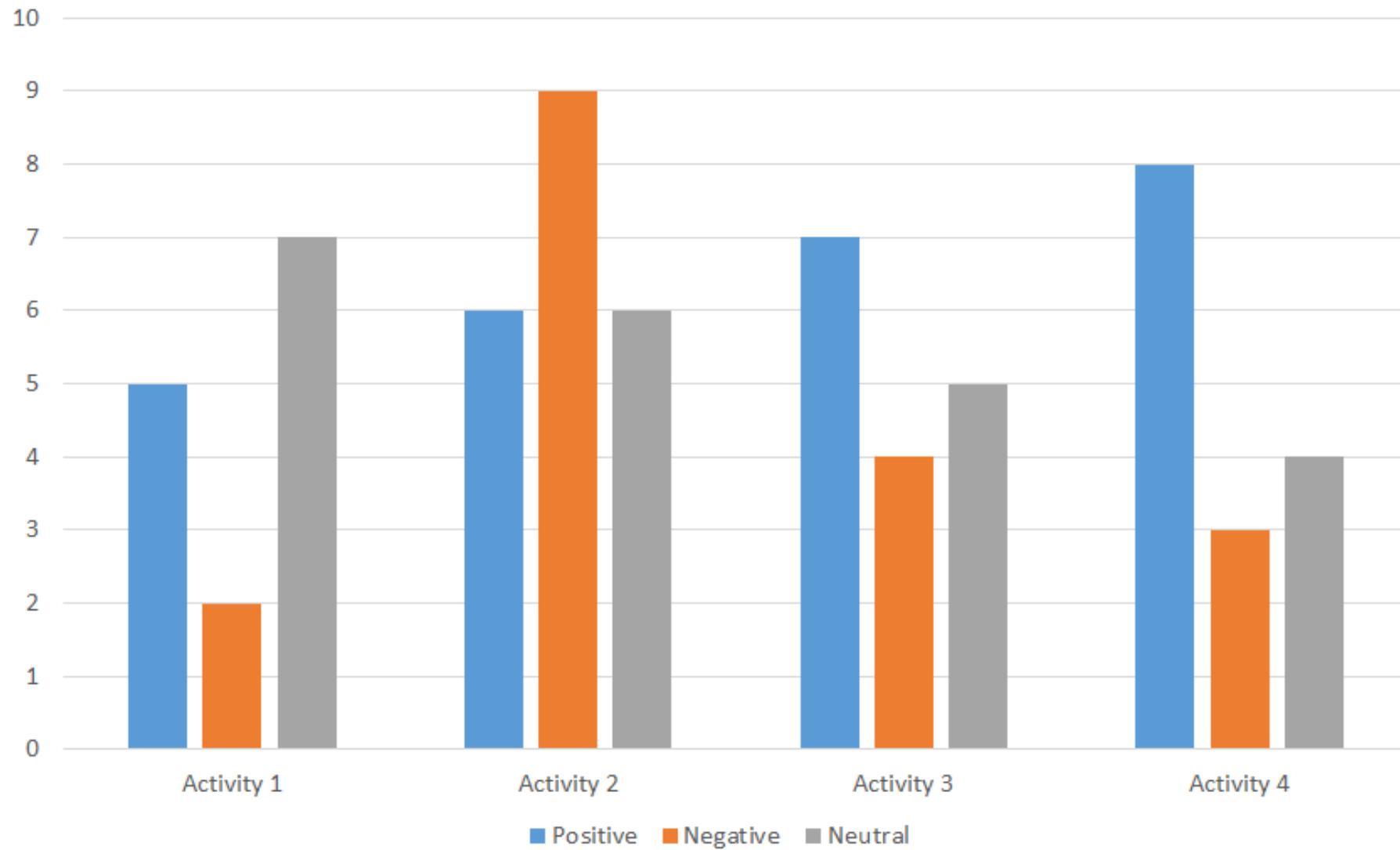
Regression plot of no. of engagement events versus performance on the course



Data Analysis (cont'd)

- Lexical semantic analysis can also be used to analyse participants' individual and collaborative reflections as they progress through the course (relevant to the emotional dimension of wellbeing)
 - *Sentiment analysis* techniques based on natural language processing, sentiment lexicons, and probabilistic reasoning, can be used to detect expressions of positive/negative/neutral sentiments towards the course content
 - *Emotion detection* techniques based on Bayesian and rule-based reasoning can be used to detect states such as enjoyment, surprise, frustration, boredom from participants' written reflections and interaction data

Tracking Sentiment Over Time



Next Steps

- Results will provide insight into the participants' collaborative reflection and inform future enhancements of both the platform and the digital materials
- Seek external grants for the following:
 - Technology consultant fee to support updates to digital learning platform
 - Research travel for leadership team
 - Course tutor platform training and participation
 - Develop Digital Learning Platform User's Manual and training videos

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