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Measuring What Matters Enquiry

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Rumble's Quest: A Scalable Digital Measure of Social and Emotional Wellbeing for Middle Childhood (6-12 years)

Why indicators of children's social-emotional wellbeing matter

Currently the OECD indicators include measures of what is usually referred to as 'subjective wellbeing' (e.g., 21. Negative Affect Balance, and 27. Social Support). However, these all pertain to adult wellbeing reported through one or more survey questions from the World Gallup Poll. Indicators of children's wellbeing are available indirectly via Student Skills measures derived from the OECD PISA tests conducted every three years.

In addition to these indicators, there is a need to develop measures which draw directly on children's self-reports of how they are feeling about themselves and their lives:

1. Children's social and emotional wellbeing is linked to positive short-term outcomes such as improved learning, peer relationships, and classroom behavior (Durlak et al, 2011; Greenberg et al., 2001; Payton et al. 2008).
2. It is also linked to long-term developmental trajectories across domains such as education, employment, antisocial behavior, and mental health, including the ability to manage stress and avoid substance misuse (Jones et al., 2015; Olsson et al., 2013).
3. Measures of children's wellbeing collected at an earlier time may therefore help explain trends in other OECD indicators such as student skills or the educational attainment of young adults. Critically, they inform effective preventive action and offer an opportunity to make program investments that build on identified strengths and address needs.
4. Especially if disaggregated to the state, regional, or SA2 levels, indicators of children's social-emotional wellbeing can be enormously valuable in assessing the impact of social and educational interventions and policies, alongside other measures such as those available through the Australian Early Development Index.

What is Rumble's Quest?

Rumble's Quest is a measure of children's social, emotional, and behavioural wellbeing. It captures children's own perspectives of their school lives and approach to learning; their friendships and social relationship skills; their worries, emotional balance, and sense of self; the way they behave; and their experience of caring others: *these are the things that matter to children.*

Rumble's Quest is presented as a computer game played by children aged 6 to 12 years that generates psychometrically valid and reliable data on six indicators of social and emotional wellbeing:

Overall Wellbeing – 27 items ; $\alpha = .83^1$

School Attachment - 7 items (e.g., 'School is a nice place'); $\alpha = .82$

Social Wellbeing - 5 items (e.g., 'People trust me'); $\alpha = .62$

Emotional Wellbeing – 5 items (e.g., 'Do you feel like you have problems?'); $\alpha = .70$

Family Support – 6 items (e.g., 'How do your parents make you feel?'); $\alpha = .73$

Behavioural Conformity – 4 items (e.g., 'How often do you get detention or sent to the principal's office for being in trouble?'); $\alpha = .61$.

These data are included in a highly accessible **data report** that users can download as soon as all the children have completed the game. To make scores on the six wellbeing dimensions meaningful, data on an additional 30 items generated by the game are provided to the users through a **Developmental Assets Report**.

More information about the measure can be found at <https://www.realwell.org.au/about-the-game/> and at <https://www.realwell.org.au/faqs-preview-material/>.

However, the most up-to-date details of the development and psychometric properties of Rumble's Quest and its precursor game, Clowning Around, are in a paper currently under review with an international scientific journal. Until published, this paper may be made available on a confidential basis on request.

A second paper has been accepted for publication in an Australian journal and is expected to be available before the end of February 2023. In this paper we used Rumble's Quest to assess the effects of the 2020 Covid lockdowns on children in Queensland, Tasmania, and Western Australia.

Rumble's Quest generates indicators that are more meaningful and reliable than those generated by a survey

Survey questions, particularly when administered to children as young as 6-years, can yield responses which may not be consistent over time, and which may not be particularly meaningful if the child is not developmentally ready to respond to such questions through a questionnaire.

By contrast, an engaging computer game provides an authentic context for children to express what they think and feel. The interactive elements and scripting of the storyline for

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Rumble's Quest frame questions in a child-relevant way that feels natural and meaningful. Questions are posed not in the abstract but as part of a conversation in a way that makes immediate sense and therefore promotes response reliability. When children play Rumble's Quest, they adopt an avatar and enter a mythical world where they meet Rumble, who is lost, and go on a quest to help him find his way home and his place in the world. This affords a natural context within which Rumble can ask the child questions about their own lives and their world. All questions are voiced, and children answer by selecting labelled icons from a response scale.

Rumble's Quest is unique internationally

To the best of our knowledge there is no other on-line system anywhere in the world that uses game technology to generate valid and reliable measures of children's wellbeing.

Australia is therefore a pioneer in developing this approach. The downside of this innovation at present is that it will take time for schools and other agencies in other countries to become familiar with the tool and its unique strengths. It will also therefore be some time before international comparisons of the Rumble's Quest indicators become possible.

Why and how was Rumble's Quest developed?

We first identified the need for a practical and robust wellbeing measure for children in middle childhood whilst undertaking the *Pathways to Prevention Project* in collaboration with educators and community practitioners (Homel et al., 2006). This project was designed to foster positive child development and strengthen family functioning in a socially disadvantaged community in Brisbane, Australia over the period 2002 to 2011 (Freiberg et al., 2005).

Development of the wellbeing measure began with the formulation of a set of questions focused on matters of fundamental importance to primary school children's lives, particularly friends, family, school, and the child's growing sense of self. We were very conscious of the need for an age-appropriate medium to create a meaningful context that would support children's capacity to report on their lives in a reliable way. We decided that a computer-based game, initially named *Clowning Around* then (as the research evolved) *Rumble's Quest*, would be an efficient and effective medium for administering the survey.

A second critical need we identified was for a system that would support practitioners' capacity to independently collect, understand, and act on the data that the measure generated. This became a core goal of the *Creating Pathways to Child Wellbeing Project* (2013-2020) through which, building on our experiences in the Pathways to Prevention

Project (Homel, Freiberg & Branch, 2015), we constructed a new software package that combined the game-based measure with a data report and other support resources that practitioners could utilize through a secure management dashboard.

The integration of the data capture application (the Rumble's Quest game) into a user management system for self-guided use by practitioners in front-line services has been critical to **the scalability of the system**. Wide dissemination and autonomous use by user groups are now possible, after years of research and development.

What is the source and cost of the data?

Until June 2022 schools and child serving agencies could take out a license to use Rumble's Quest through RealWell, a social enterprise developed by and supported within Griffith University. The cost was, and remains, approximately \$4 per child per year.

A condition of the license is that the user consent to their de-identified data being shared with researchers at Griffith for the purposes of 'population norming,' psychometric analyses, and research on 'the social determinants' of child wellbeing. (The data are de-identified both in terms of the individual child and the details of the user organisation.)

In July 2022 RealWell Pty Ltd was established as a for-purpose social enterprise with a continuing research relationship with Griffith University. The University continues to hold de-identified data for research and norming purposes.

How practical is Rumble's Quest as a tool for generating national and international indicators of child wellbeing?

Rumble's Quest use is steadily growing, mostly through primary schools across Australia. Currently more than 40,000 children have successfully played the game. Schools and community agencies value Rumble's Quest for its highly accessible data reporting system and its user supports in the form of videos, training modules, and other resources.

To make Rumble's Quest a fully national indicator, a sampling frame of primary schools could be constructed that ensured that a random (or at least representative) sample of Australian children could be generated (say) every three years. Since the schools would be the license holders and would own their data, to be included in the sampling frame a school (and the parents or guardians of the children at the school) would be required to consent to their de-identified data being used for the national project. In return for participating, schools could be subsidised financially and would also of course have full access to their own data report as a basis for action planning at the whole-of-school level or at any level of disaggregation they specify.

As noted earlier, if the use of Rumble's Quest were restricted to Australia, it would not be possible to make **international comparisons** of the kind that are currently possible with most other OECD indicators. It might nevertheless remain important to generate nationally representative data just for Australia, for the reasons stated at the beginning of this submission. However, it is likely that at least some other countries would be interested in using the tool, especially as it becomes better known internationally through the scientific literature.

Declaration of interest

The author of this submission and other members of the research team declare that they derive no personal financial benefit from RealWell Pty Ltd.

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