Whole Mouth Health Arcade: Platform Analytics Report

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Executive Summary

This report evaluates participant engagement with the Whole Mouth Health Arcade, a global oral health platform developed by FDI World Dental Federation and Adelaide University. The analysis is based on a dataset collected from the platform's four interactive activities from September 2023 until June 2026, following the official launch of the Whole Mouth Health Arcade. The analysis is based on engagement data from the platform's four interactive activities, presented through a set of interactive dashboards.

The findings show that the platform is performing strongly. 1,404 responses have been received from participants across six continents, with consistently high engagement quality, reflected in an average progress rate through activities of 84.6% and a median engagement time of 1 minute 38 seconds per activity. The activities were not intended to collect demographic data, however, data from the Lifelong Behaviours activity indicates 41% of participants in this activity were aged 18–34, 28% aged 35–44, 26% aged 45–64, and 4% aged 65 years or older. A comparison across the four activities reveals two clear strengths: the Fun Facts activity is reaching the widest audience with 575 people engaging, while the Whole Body Quiz Pack achieved the strongest engagement quality, with an average completion of more than 94% of this activity. Participant feedback has been consistently positive, with #Learning the most frequently selected descriptor for the experience. Negative responses have been minimal across all activities.

During the completion of these activities, more than 80% of participants are demonstrating recognition of the connection between oral health and overall wellbeing, indicating that the platform's core educational message is being successfully understood. Personal reflections on behaviour through the Lifelong Behaviours activity have revealed that the platform is reaching participants who do not already have strong oral health behaviours, and provide insights into the gap between awareness and action. This highlights the continued opportunity for the platform to have impact as both an engagement and educational strategy. Overall, the platform and activities have been successful in driving high quality and meaningful engagement with the concept of whole mouth health, and provide a foundation for continued growth of this novel approach to public health education.

Introduction

This report presents an evaluation of user engagement with the Whole Mouth Health Arcade, a global digital health initiative developed by FDI World Dental Federation and Adelaide University. The platform aims to improve public understanding of the connection between oral health and overall wellbeing through interactive educational content delivered through four gamified co-design activities.

This report presents data about how audiences have engaged with the platform, including the scale of participation, engagement quality, content reception, and participant sentiment. The analysis is based on data presented through a set of interactive dashboards, with supporting visualisations referenced throughout.

Project Background

The Whole Mouth Health Arcade is a subproject developed as part of the FDI Whole Mouth Health project, a global collaboration between the FDI World Dental Federation, Sheffield Halam University, Adelaide University, Bangor University, the University of Sheffield, the University of Ibadan, and the National Dental Association of Chile. The Whole Mouth Health Arcade was officially launched in September 2023.

The online platform was designed to translate co-design activities that were initially developed for a low-contact co-design process into a scalable digital format. The aim of the platform is to improve public understanding of the relationship between oral health and overall wellbeing. It does this by providing an engaging digital experience, connecting audiences with educational content through a series of interactive activities. The platform encourages users to explore how oral health influences physical, emotional, and social wellbeing in a fun and relaxed format.

The Whole Mouth Health Arcade includes four interactive activities:



Fun Facts

The world of mouth health is quirky indeed.



Rediscover Memories

Look back in your past and see in new ways.



Whole Body Quiz Pack

Is your knowledge more than skin deep?



Lifelong Behaviours

Reflect on a lifetime of living with and caring for your mouth.



These activities are constructed within the Qualtrics Platform (https://www.qualtrics.com/) enabling the aggregation of participant responses to collect valuable insights into perceptions, experiences, and behaviours related to oral health. In line with the background principles of co-design, this also allows transparent sharing with participants, so that they can be empowered to understand not only their own beliefs, perceptions and experience, but also to situate those within the context of others'. As participation continues to grow across different countries and regions, the activities generate data that can provide meaningful insights into user engagement and understanding of whole mouth health concepts at a global, regional, and local level.

The project team have developed an automated data analytics and visualisation process that supports the ongoing evaluation of the online platform. Activity responses are extracted directly from Qualtrics through API integration and processed using Python to clean, transform, and organise the data for analysis. The processed data is then integrated into Power BI to create interactive dashboards that provide clear and accessible insights into user participation, engagement patterns, response trends, and geographical distribution.

By automating the collection, preparation, and visualisation of data, the dashboard approach enables easy access to insights without requiring manual processing. The resulting solution supports evidence-based decision making and allows better understanding of how users engage with the website and its content. Further, this establishes evidence for continuous improvement of the platform and strengthens its ability to promote oral awareness on a global scale.

Activity Structures

Fun Facts

The Fun Facts activity uses a three-level rating scale ("love it," "interesting," "boring") to review 15 "fun facts" relating to oral health. Facts are presented in a random order in two sets, eight then seven, with an animated GIF presented as encouragement in between. Response buttons are presented as graphics with the activity automatically advancing as each fact is reviewed to encourage momentum through the task. At the end of the task, participants are prompted to reflect on which of the facts they have reviewed 'everybody should know' as a prompt to consider the importance of sharing these facts with family and friends.

The "fun facts" list includes:

- **Ancient Dentists:** Dentistry is one of the oldest professions, dating back to Ancient Greece in 7000 BC where Aristotle wrote about tooth decay.
- **Becoming a Dentist:** On average it takes 5-6 years of university study to become a dentist, but in some countries it can take even longer.
- **Caries aren't just holes in your teeth:** It is thought that dental caries is an infectious bacteria that can be transmitted between people – particularly between nursing mothers and their babies.
- **Eating sweets in one go is better for your teeth than snacking through the day:** eating sugar produces acid in your mouth that damages your teeth. Your saliva fixes this, but it takes time to work.
- **Everything is connected to your mouth:** Nearly every part of your body is connected to your mouth health. Your mouth displays symptoms of many illnesses, and poor mouth health can also cause a range of illnesses.
- **Every mouth is different:** Your tongue print is just as unique as your fingerprint. Even identical twins have different tongue prints.
- **Fear of the dentist is contagious:** Hearing about a bad experience from a friend or family member, or even seeing a bad experience on TV can be enough to make people scared of the dentist.
- **Strong Stuff!** Tooth enamel is the hardest substance in the human body.
- **Tooth worms:** Doctors used to think tooth decay was caused by worms. They prescribed myrrh and opium – both very expensive. A cheaper option was to burn a candle close to your teeth so the worm would fall out.

- **It's the fizz!:** Even sugar-free fizzy drinks and sodas can damage your teeth. The carbonation (or fizz) is what causes acidity and is what affects your teeth.

- **Spit, don't rinse:** Rinsing after brushing washes away an important layer of protection.

- **Sugar before bed is EXTREMELY bad for your teeth:** The bacteria in your mouth feed on the sugar and produce acid. When you sleep your saliva levels drop, so you can't neutralise the acid.

- **The traditions of losing baby teeth is special in many cultures:** Some cultures have the Tooth Fairy, others have the Tooth Mouse. In some cultures, teeth are thrown toward the sun, while in others they are buried underground or fed to animals.

- **That's a mouthful!** The mammal with the most teeth is the Giant Armadillo, which can have as many as 100 teeth. Humans only have 20 as children and 32 as adults.

- **The world's first dentistry book:** The first book on dentistry was published in 1530. It was called: The Little Medicinal Book For All Kinds of Diseases and Infirmities of the Teeth. Have you read it?

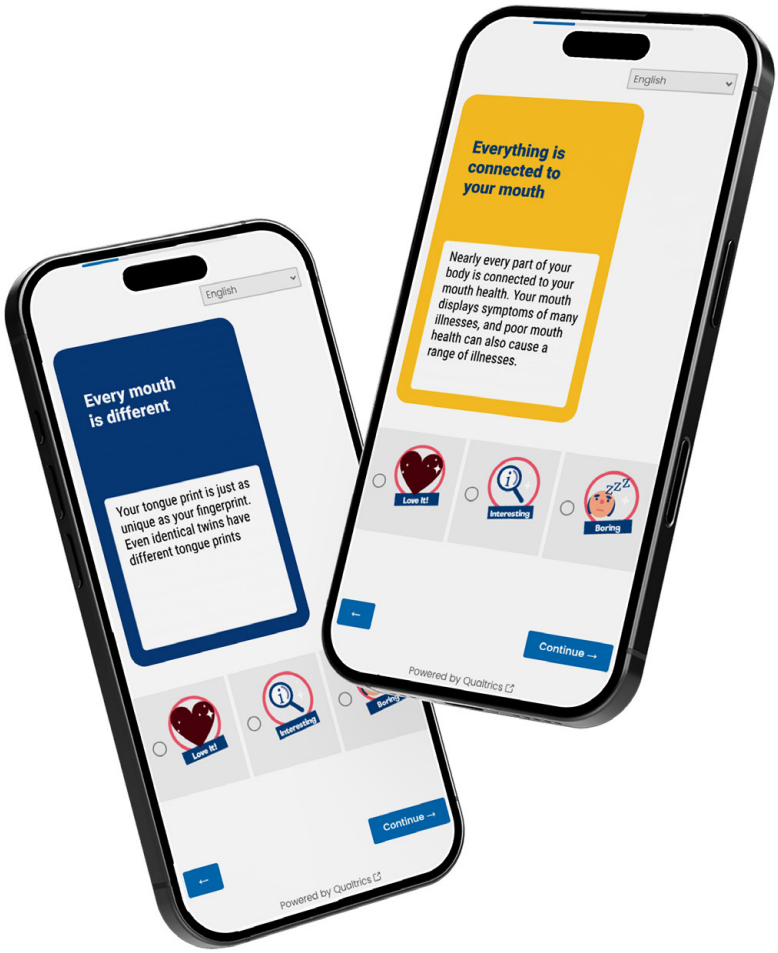


Figure 1 - Fun Facts Activity

Rediscover Memories

The Rediscover Memories activity is a guided reflection activity that provides the opportunity to pause and reflect on memories and experiences that may influence oral health behaviours. The task asks participants to select up to five strong memories from a list that will form the basis for their reflection. These items are presented as a visual matrix, with text and icons to suggest a gameboard. As each is selected, it turns green and can be de-selected to choose another.

The items in this activity are:



- Wobbly tooth
- 1st adult teeth
- The tooth fairy
- 1st toothbrush
- Brushing your own teeth
- Learning about dentists



- First dental visit
- Awareness of teeth in photos
- Anxious teeth grinding
- Being told ‘you’ve got food in your teeth’
- Hot/Cold sensitivity



- Getting braces
- Losing your adult teeth
- First filling
- First major dental work
- Being told ‘you’ve got bad breath’



- Ashamed of own teeth
- Toothache
- Pulling a tooth yourself
- Avoiding dentist visits
- Tooth removed by dentist



- Wisdom tooth removed
- Choosing your own dentist
- First kiss
- Partial dentures
- Full dentures

The items in this list include some that are typically associated with oral health, as well as some that are based on social interactions that begin to suggest a wider view of the impacts of oral health.

Once participants have selected up to five items, they are then prompted to share the approximate age they were when recalling this experience, whether this was a positive, negative, or neutral experience, and space to share a short (or long) story about what happened. After sharing their reflections, participants are again presented with a motivational GIF to encourage them to continue through the activity, before being asked to reflect on whether someone born today would likely have an experience that was better, worse, or about the same than their own. As with the Fun Facts activity, this is designed to shift reflection from the inward focus on the individual and onto others.



Figure 2 - Rediscover Memories Activity

Whole Body Quiz

The Whole Body Quiz activity is presented as an interactive quiz for people to test their knowledge of Mouth Health. The quiz starts by asking how many questions the participant would like to try with options of "I'm feeling brave. Show me all 15" and "Just 5 please." Participants are then presented with questions about whether they think a particular body part, sense, or experience is related to their mouth health. Items are presented in a random order with either five or 15 presented.

Once participants have selected a response, a graphic presents what "experts" have said. These items are in alignment with evidence from the FDI Whole Body Health project. At the end of this quiz, participants are encouraged to view the results from others who have also taken the quiz and are redirected to the community findings summary that updates in real time. This supports reflection on the social construction of knowledge, and on their own level of knowledge against others. Across the quiz, participants are introduced to the idea that almost everything is connected to mouth health, with one "no," four "maybe" and 10 "yes" items.

The quiz items are:

Bones	Joints	Personality	Taste
Brain	Kidneys	Relationships	Touch
Heart	Lungs	Skin	Work/Career
Intestine	Muscles	Smell	

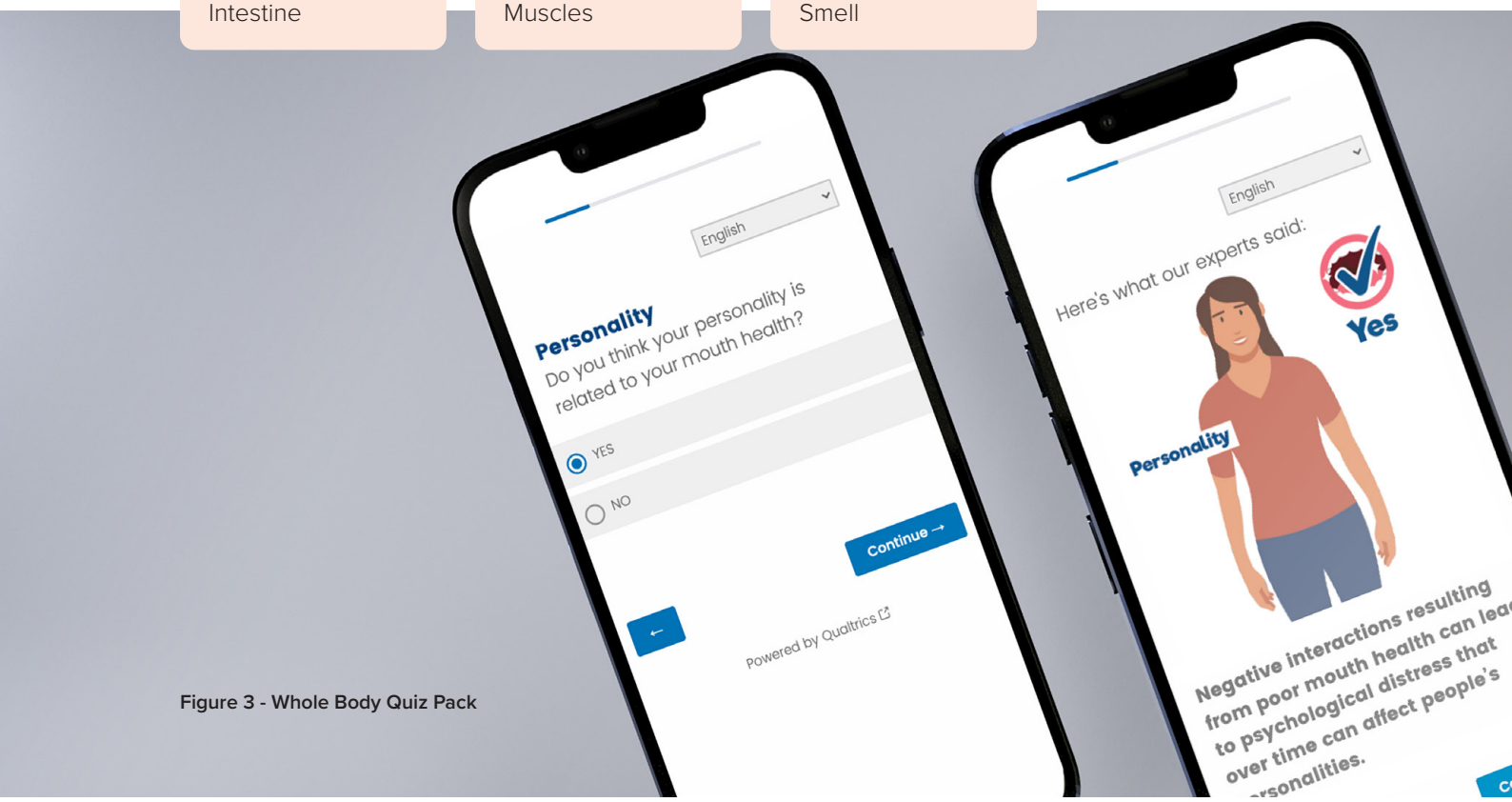


Figure 3 - Whole Body Quiz Pack

Lifelong Behaviours

The Lifelong Behaviours activity is structured as a reflective self-assessment of oral health behaviours, as well as some of the antecedent triggers of both positive and negative oral health behaviours. The activity is structured to explore four age categories: Young Adult (18-34), Early Middle Age (35-44), Later Middle Age (45-64) and Older Age (65+). Participants are presented with a series of behaviours and asked to first eliminate those behaviours that they have 'always done' from the list, then those that they have 'never done'.

From the remaining, participants are encouraged to select up to three behaviours that they would like to take forward into the next part of the activity. Once behaviours have been selected, participants are asked to choose the periods within their life where they engaged in these behaviours, but to leave those periods when they didn't blank, then to reflect on why they commenced a behaviour, and then why they ceased or changed that behaviour. After a motivational GIF, participants are prompted to imagine they could travel back in time and give advice to their younger self. Once they have described the advice they would give, they are asked to select the age range they would wish to receive this advice.

The behavioural items are:

- Attended the dentist regularly for checkups
- Deliberately avoided going to the dentist / attended the dentist only when in pain
- Smoked cigarettes or used tobacco
- Taken 1 or 2 regular medications (for more than 6 months)
- Taken 3 or more regular medications (for more than 6 months)
- Deliberately removed your own adult teeth
- Cleaned your teeth at least twice per day
- Cleaned your teeth once per day or less (but not twice)
- Used a fluoride toothpaste
- Regularly flossed your teeth
- Regularly consumed sugary food or drinks
- Actively avoided drinking or eating sugary things

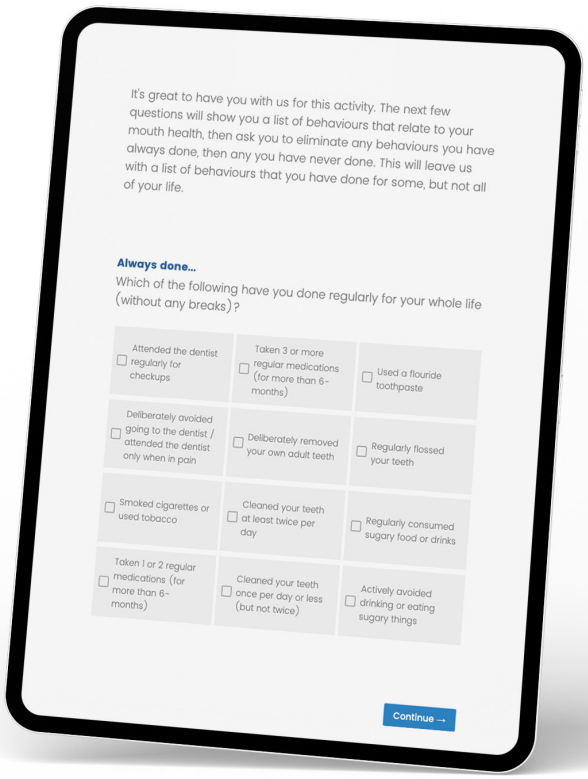


Figure 4 - Lifelong Behaviours



Implementation Process

As part of the development of the Platform, an automated end to end analytics pipeline has been developed to collect, process, and visualise data from the Whole Mouth Health website. Activity responses are automatically extracted using the Qualtrics API, removing the need for manual downloads and ensuring the data remained consistently up to date.

The data is then processed in Python, where it is cleaned, standardised, and prepared for analysis. Key metrics such as response counts, completion rates, engagement levels, and activity duration are also generated during this stage. The processed data is then integrated into Power BI, where a structured data model and custom calculations using Data Analysis Expressions (DAX) have been implemented to support interactive analysis. Dashboards have been created to present insights into global participation, engagement patterns, behavioural trends, and user feedback, with filtering options enabling deeper exploration by activity type and other dimensions.

The approach combines Qualtrics, Python, and Power BI to transform raw data from the platform into clear and actionable insights. This reduces manual effort, improves data accuracy, and enables the FDI World Dental Federation to continuously monitor engagement, and evaluate the effectiveness the Whole Mouth Health platform, as well as of any future efforts to increase engagement.

Engagement Analysis

Global Reach & Engagement

Early pilot testing began in October 2021 with an official launch in September 2023. As of June 2026, the Whole Mouth Health platform has recorded 1,404 responses across its four activities, demonstrating substantial international participation and broad audience reach (Figure 5).

Responses were received from 97 countries across all six World Health Organization (WHO) regions (African Region, Region of the Americas, South-East Asia Region, European Region, Eastern Mediterranean Region, and Western Pacific Region). The highest participation was observed in Australia (383 responses, 26.4%), the United Kingdom (161, 11.1%), Switzerland (136, 9.4%), and India (81, 5.6%) (Table 1).

Country	Responses	% of total
Australia	383	26.4%
United Kingdom	161	11.1%
Switzerland	136	9.4%
India	81	5.6%
United States	77	5.3%
Philippines	34	2.3%
Brazil	34	2.3%
Portugal	28	1.9%
Spain	25	1.7%
France	24	1.7%
Other countries (87)	470	32.3%

Table 1 - Responses by country

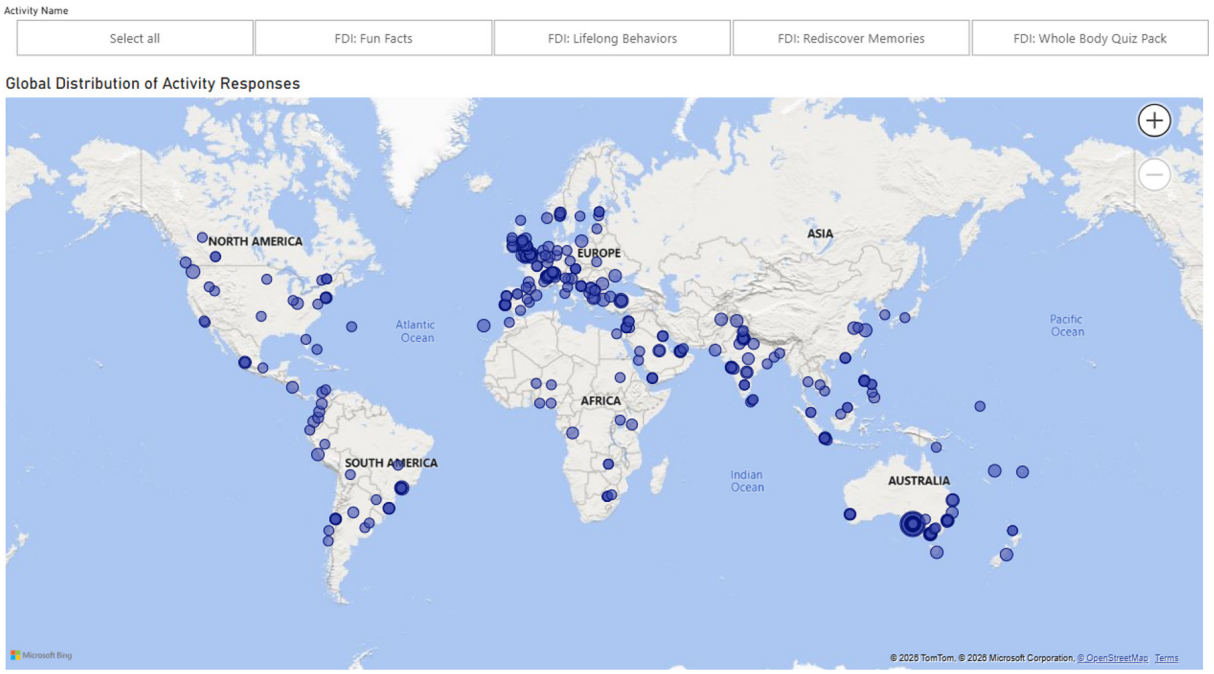


Figure 5 - Whole Mouth Health Global Distribution map. Participation spans all WHO regions and demonstrates global engagement, with the highest response concentrations located in Europe and Australia.

Figure 6 below presents a screenshot of the Web Analytics Summary dashboard. Engagement quality across the platform is consistently strong. Participants have achieved an average progress rate of 84.6%, indicating that users who began an activity typically remained motivated to complete the majority of its content. The overall completion rate for activities (i.e. 100% completion) is 41%. The median completion time of 1.38 minutes further demonstrates that activities perform as intended, providing a concise, accessible, and attention holding experience without imposing a significant time burden.

Participation was sustained across both the day and week. Responses were recorded throughout the full 24-hour cycle, reflecting consistent engagement at all times of day without a single dominant peak.

As participants were located across numerous countries and all timestamps are reported in Coordinated Universal Time (UTC), activity appears broadly distributed across the day. This reflects the platform's global audience engaging at different local times, rather than uniform engagement throughout the day. Weekly participation was highest on Monday, followed by Thursday and Tuesday. Engagement gradually declined towards the weekend, with Saturday recording the lowest participation levels. This data should be interpreted with caution as the time is not standardised to local times.

A comparison across the four activities identifies a clear pattern in how audiences engage. Fun Facts recorded by far the largest audience, with 575 responses — more than double that of any other activity. The Whole Body Quiz Pack recorded the strongest engagement quality of the four, with the highest average progress rate (94.1%), the highest completion rate (52%), indicating that participants completed the activity components efficiently and in full. This activity had the shortest median completion time (1.20 minutes), supporting the approach of providing multiple short engagement opportunities.

Whole Mouth Health Web Analytics Summary

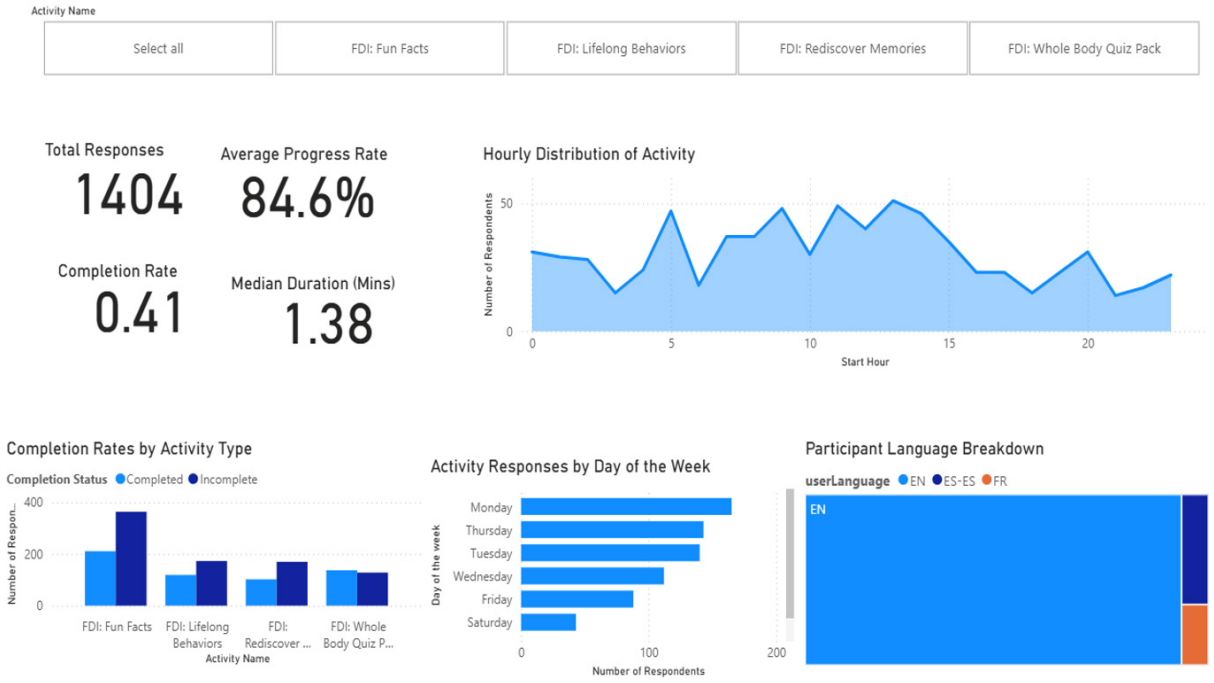


Figure 6 – Whole Mouth Health Web Analytics Summary Dashboard

This data indicates that the platform can both attract a broad global audience and maintain participant engagement. The educational content continues to reach a wide audience, and the interactive formats kept users engaged, indicating that the platform provides a successful and engaging learning experience.

The platform supported participation from a global audience, with responses recorded across three languages. The majority of responses were recorded in English (93.38%), with limited responses in Spanish (4.27%) and French (2.35%). An update in June 2026 has added Portuguese (Brazilian) language support with further language additions possible. All graphic elements are held by the FDI World Dental Federation as Adobe Illustrator and Adobe InDesign files. While the graphic elements provide additional complexity for adding further languages to the platform, these are essential for providing the gamified and enjoyable experience of the platform.



Engagement and Educational Impact

The engagement data indicates that participation was not only high in volume but also meaningful in quality.

Across the educational content, participant reactions were strongly positive, with most responses categorised as “Interesting” (52.63%) or “Love” (37.28%) with only 10.09% of facts shown to participants categorised as “Boring.” The negative (“Boring”) reaction was mainly focused on facts about the dentistry profession and history-oriented topics, such as “Becoming a Dentist” (Boring: 38.37%) and “World’s First Dentistry Book” (Boring: 21.05%). By contrast, content that has personal relevance and is focused on everyday health generated more positive responses. Topics such as “Every Mouth is Different” (Interesting: 52.94%; Love: 38.42%) and “Everything in Your Mouth is Connected” (Love: 52.63%; Interesting: 45.03%) consistently attracted the highest positive response rates, suggesting that participants are most interested in content that helps them understand their own health, behaviours, and wellbeing rather than broader historical or professional perspectives.

At the end of each activity, participants are asked to select a series of hashtags that describe their experience. The hashtags available are:

#Fascinating	#Clever	#Tricky	#Clever
#Curious	#Smart	#Easy	#Timewasting
#Boring	#Enjoyable	#Distracting	#Helpful
#Fun	#Tedious	#Cheeky	#Learning

The most frequently selected descriptors of the experience across all activities are #Learning (128, 15.22%), ahead of #Helpful (103, 12.25%), #Enjoyable (107, 12.72%), #Fun (95, 11.3%), and #Curious (94, 11.18%). For an educational initiative this is a particularly positive outcome, as the dominant participant sentiment aligns directly with the platform’s core purpose.

These findings are summarised in the Knowledge & Curiosity Dashboard, with a screenshot of this dashboard presented in Figure 7.

Knowledge & Curiousity (Whole Body Quiz Pack & Fun Facts)

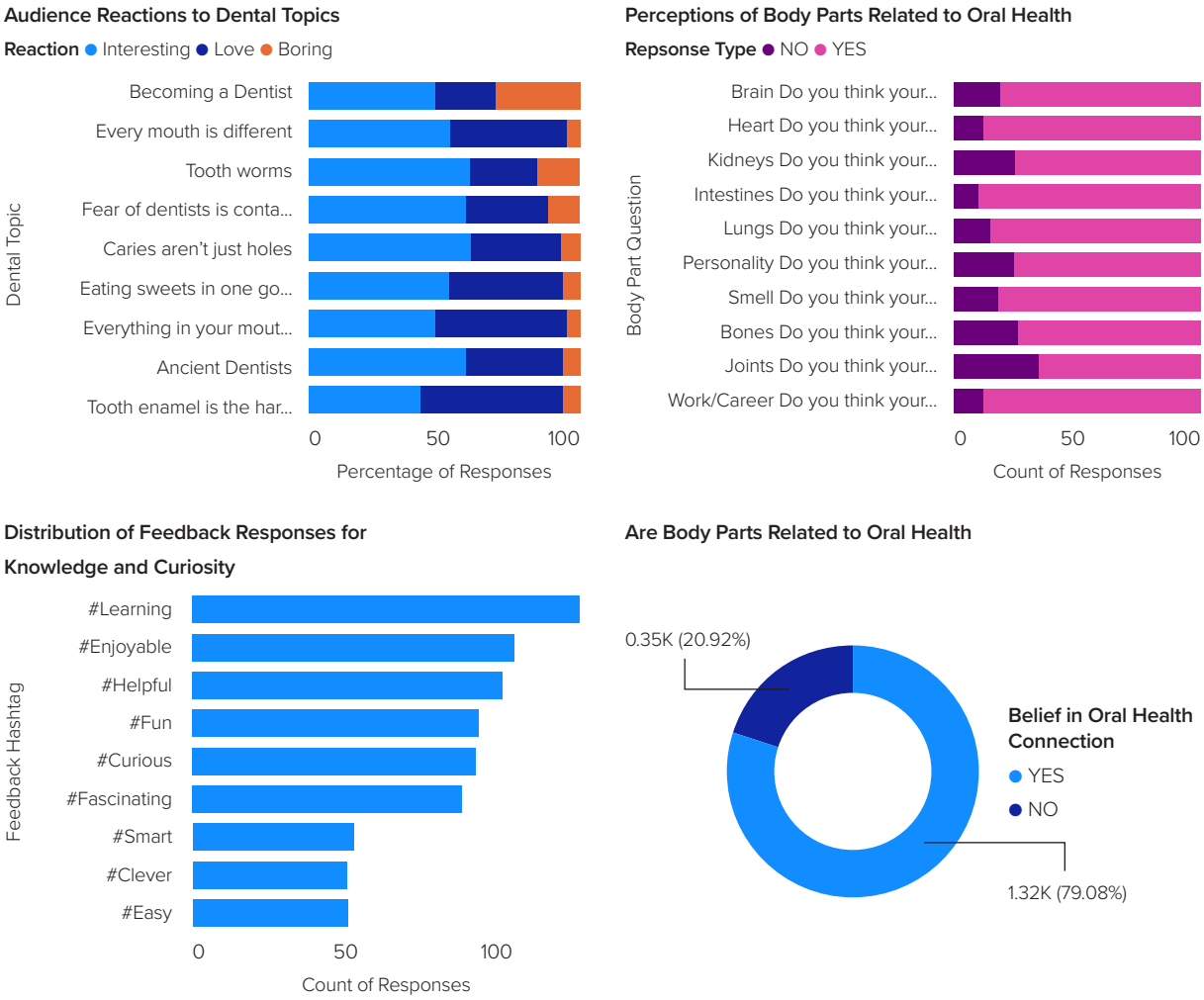


Figure 7 – Knowledge & Curiosity Dashboard

Participant responses also demonstrated genuine understanding of the platform's core message. Approximately 80% of participants indicated that they understand that oral health is connected to the wider health of the body. As shown in the Community Findings, agreement was strongest for well-established connections such as taste (98%), intestines (94%), lungs (92%), and heart (90%), while it was low for touch (44%) suggesting that some participants were actively considering mechanisms for connections, while others may have understood the core background learning of everything being connected to mouth health and therefore selected 'yes' when presented with touch. Of all of the connections where there is strong evidence for a relationship with mouth health, Joints was under-recognised by participants, with 41% selecting 'no' for this relationship. As engagement continues, continued reflection on these results may provide useful insights into further messaging connected with other educational approaches including the FDI Whole Body Health platform.

The community findings summaries provide participants (and the FDI) the opportunity to view the aggregated data from all responses to the activities. An example of the community findings summary from the Whole Body Quiz is presented in Figure 8 below.

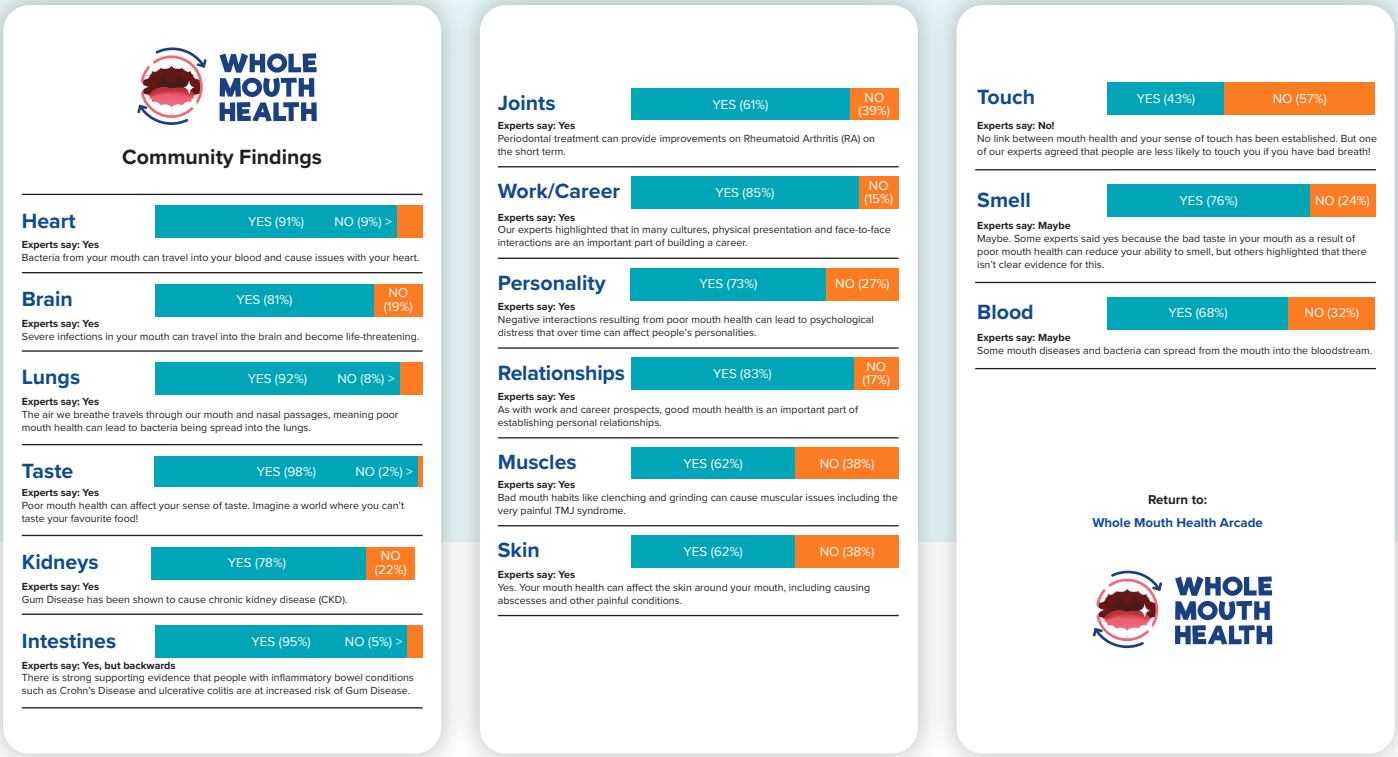


Figure 8 – Community Findings summary from the Whole Body Quiz

The quality of engagement is further demonstrated through the reflective activities: Rediscover Memories and Lifelong Behaviours. These activities required participants to think about and recall their personal experiences rather than simply answer quiz-style questions. Despite the additional effort involved, #Enjoyable remained the most frequently selected descriptor, suggesting that users found the experience positive and engaging. Open text responses contained a high level of personal detail, with many participants referring to family influences, childhood experiences, and long-standing routines. This indicates that users engaged meaningfully with the activities and were willing to share genuine reflections rather than provide brief or superficial answers.

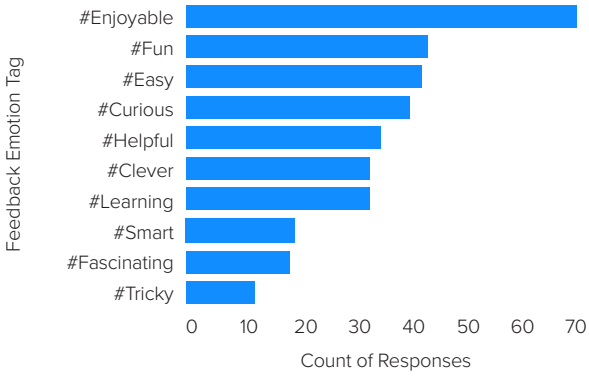
The behavioural data within these activities also offers a useful insight. Foundational habits such as using fluoride toothpaste and brushing twice daily were most commonly reported as lifelong practices, while preventive behaviours such as regular flossing and reducing sugar intake were reported less consistently. This identifies a clear gap between awareness and routine practice, which targeted educational content is well positioned to address. A screenshot of the dashboard summarising engagement with the two reflective activities is presented in Figure 9.

Habits & Reflection (Life Long & Rediscover Memories)

Word Cloud of Responses



Distribution of Feedback Responses for Habits & Reflection



Oral Care Habits by Consistency Level

Always done... Which of the following have you done regularly for your whole life (without any breaks)	Never done... Of those that you didn't choose, which have you never done?	Sometimes... Here are some of the things you might have done at some point, but not your whole life

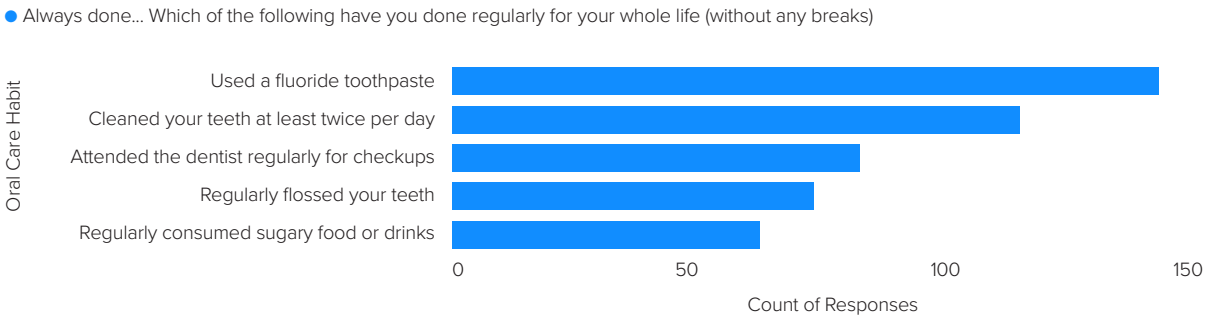
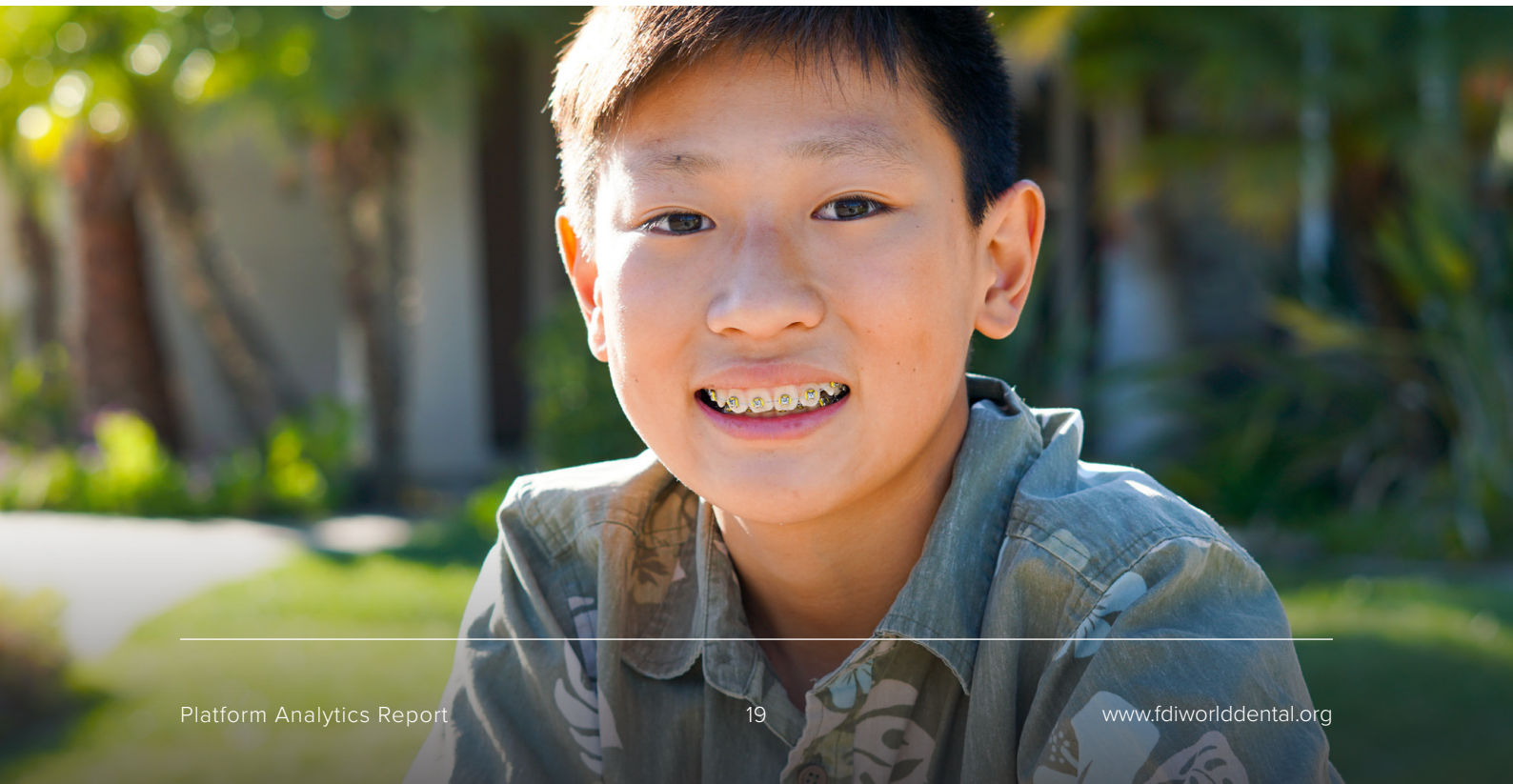


Figure 9 – Habits & Reflection Dashboard



Recommendations & Future Enhancements

Future recommendations for the project would be focusing on enhancing the scalability, usability, and analytical capability of the Whole Mouth Health platform, including its integration into targeted campaigns or educational interventions. As the platform continues to grow and attract a wider global audience, there is an opportunity to further strengthen the data infrastructure to support more advanced and real time insights, providing useful feedback at a community level.

There is an opportunity to further enhance the dashboards by incorporating more advanced analytical features such as predictive analytics and trend forecasting. This would enable the Whole Mouth Health team to anticipate user behaviour patterns and identify emerging engagement trends across different regions and demographics. Adding more granular filters and drill down capabilities would also improve user experience and allow deeper exploration of the data.

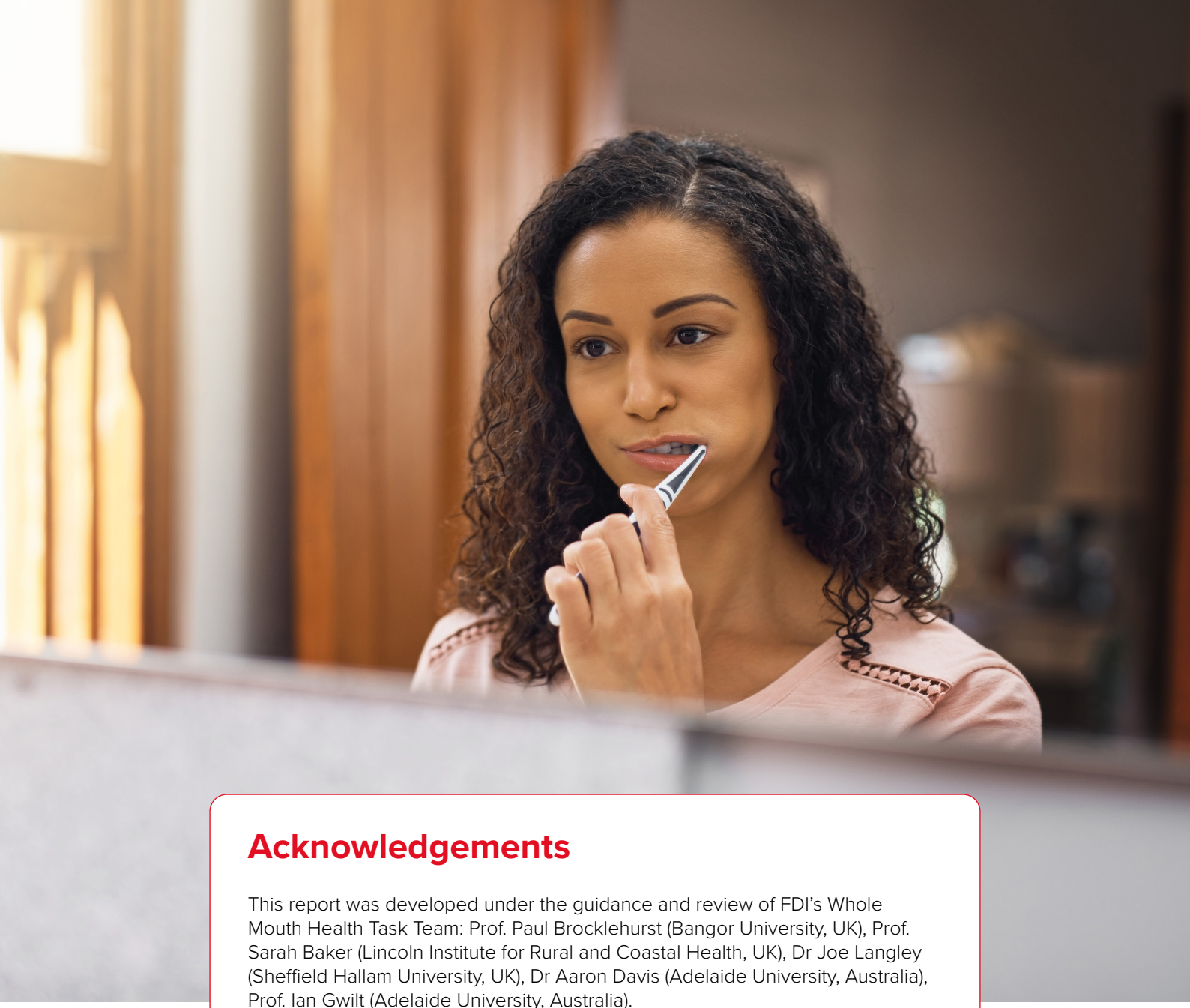
Conclusion

The Whole Mouth Health platform has demonstrated the possibility of digital engagement driving conversations and reflection on oral health. Analysis of 1,404 global responses from the platform demonstrates that the initiative has successfully achieved both broad reach and meaningful user engagement. Participation was recorded across all WHO regions, with particularly strong engagement in Australia, the United Kingdom, Switzerland, and India highlighting effective dissemination and international accessibility of the platform. Engagement metrics indicate high quality user interaction, with an average completion progress of 84.6%, reflecting strong user retention throughout the activities.

Qualitative and sentiment analysis further highlights the effectiveness of the platform's educational approach. Participants consistently expressed positive engagement, with dominant descriptors including #Learning, #Helpful, #Enjoyable, and #Curious. Additionally, approximately 80% of respondents recognised the connection between oral health and overall systemic health, indicating successful knowledge transfer and alignment with the project's core educational objectives.

Behavioural insights also revealed both strengths and opportunities for improvement. While foundational oral hygiene practices such as twice daily brushing and fluoride toothpaste use were widely reported, preventive behaviours such as flossing and dietary sugar reduction were less consistent, identifying clear targets for future educational interventions.

The Whole Mouth Health analytics framework provides a robust, scalable, and automated system for transforming global data into actionable insights.



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