Tool for evaluating the educational potential of children's apps (based on Kolak et al., 2021)

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Instruction:

Use the app for 5 minutes, exploring as many activities as possible. Then, rate it on the 10 items from our tool, assigning **0–2 points** to each item. Add up the points to calculate the total score.

- If the score is **above 7**, the app performs better than the average app rated in our study of the most popular apps in the UK market.
- The **higher the score** (and the more criteria the app meets), the stronger its **educational potential**.

Item	**Points**			
	2	**1**	**0**	**The app score**
Learning goal	There is a clear overall learning goal(s) targeting early skills development, e.g. linking sounds and letters, counting, learning shapes and colours, teaching about people, places and environment (relevant to each age/stage).	There is no clear overall learning goal but some or all activities within the app teach early skills relevant to each age/stage e.g., selecting objects in a particular colour, matching shapes, selecting ingredients to bake a cake.	There is no clear learning goal, e.g. child is avoiding obstacles in a race.	
Meaningful learning **(Do not score this item if an app scored 0 for Learning goal)**	In most cases learning is meaningful and has a purpose (relevant to each age/stage); the content is relevant to real life, e.g. child is learning numbers in real-life context, such as selecting and counting the items to be packed in a suitcase before going on holidays, finding the missing word in a sentence, or learning the bedtime routine (brush	In most cases, learning occurs outside of a real-life context, e.g. child has to drag the word to the corresponding picture, or is asked questions about real-life knowledge outside of a life context, such as question "What do you use when it's raining" when child has to select the correct image (wellies) on a blank screen, instead of teaching the skill in real-life situation/environment	The app does not promote meaningful learning, e.g. child has to trace the letter or tap on a given letter when it is presented on the screen (as opposed to selecting a correct letter in an array of different letters)	

	the character's teeth, take a shower, dry hair)			
Solving problems	App encourages child to solve problems relevant to each age/stage, which promote reasoning, thinking and creativity, e.g. finding a missing element in a pattern, finding all the words that begin with a given sound, dragging letters to build a word, selecting only items in particular colour and shape, etc	App encourages child to solve problems relevant to each age/stage, but the problems are not mentally challenging, e.g. finding two matching elements in a memo game, tapping on blue objects among colourful objects, tapping on a particular letter or number among other letters/numbers	The app does not involve problem solving (e.g., avoiding obstacles during a race or collecting gifts during a train ride).	
Feedback	Feedback is specific, meaningful, constructive and age appropriate (i.e. app provides positive feedback when child makes an error and in this way motivates the child to improve, e.g. by repeating the instruction or by demonstrating how to perform an action using visual help, such as arrows showing the direction of the tracing in a tracing shape activity, or index finger pointing to the correct element on the screen). Feedback relates directly to the activity/task and supports the learning goal, e.g. "Good job counting all the ducks!", "This is letter 'a', well spotted!", "Oh dear, this is not a toothbrush – have another go and look for a toothbrush".	Feedback either (a) includes motivational message ("Well done!", "Good job!", etc.) presented via audio or onscreen, (b) comes as points, badges or stars together with an audio message (e.g. "Well done, you've earned a star!"), or (c) comes as visual age appropriate signal of the reason for the reward (e.g. a correctly selected object is highlighted or shaken), but it is not specific, meaningful or constructive, i.e. it does not specifically relate to the reason for feedback (e.g. "That wasn't right, try again"), or app does not demonstrate how to perform an action (e.g. no arrows showing the direction of the tracing in a tracing shape activity)	Feedback is either (a) limited to correctness of child's responses, e.g. "Correct!", "That's right!", (b) non-specific (e.g. cheering, beeping) or (c) comes as points, badges or stars but is not accompanied by an audio message, and is not an age-appropriate signal of the reason for the award (e.g. confetti on the screen).	

Social interactions	During use, app involves "social" interactions with characters onscreen (e.g. a character asks to repeat after him/her, asks questions or gives instructions). The character must be present onscreen when it is communicating with the child and it must "look" directly at the child and be animated (i.e. move its mouth or gesture)	App either (a) involves some "social" interactions with characters onscreen that are not related to the learning material, or (c) involves "social" interactions with characters onscreen that are related to learning but the character is rarely present on the screen during instructions, or it is not animated	App does not involve "social" interactions with characters onscreen.	
Opportunities for exploration	App is semi-structured and gives child the opportunity for exploratory use, e.g. the order of activities/games is fixed, but within the activity child can move freely across the screens and try different interactions in his/her preferred order, or app provides a significant free play space but comes with frequent fixed questions or challenges within the play.	App is either (a) mostly structured and does not give child many opportunities for exploratory use, e.g. child can choose which activity/game to play first but interactions in the activities/games are fixed, without the opportunity for the child to choose what to do and in which order, or (b) app provides mostly free play with only occasional fixed questions or challenges within the play	App is either (a) fully structured and does not give child any opportunity for exploratory use, activities are framed and come in a fixed order, e.g. a set of games being introduced one after another in a fixed order, with fixed interactions in them, or (b) app provides only free play and no fixed questions or challenges within the play	
Storyline	The content is created to be on either one overall storyline that connects all activity goals (e.g. character goes on an adventure with dinosaurs) or number of mini storylines and routines (e.g. storylines can connect a set of activities such as character goes on a submarine or treasure hunt)	The content is not created to be on an overall storyline (or there are no multiple storylines connecting sets of activities) but the app may follow a routine, or some individual activities may follow a routine (e.g., character is brushing teeth, taking bath, getting dressed).	Challenges in the app are not combined into an overall storyline or individual storylines (e.g., characters talk about their hobbies), and the app does not encourage the child to engage in routines	

Quality of language	App always contains age-appropriate and child-directed language; speech is clear, its pace is slow or moderate and easy to follow. Sentences are not overly complex and not too long. Language is comprehensible	App sometimes doesn't contain age-appropriate language and/or sentences are sometimes overly complex, speech is unclear or its pace is too fast and not easy to follow.	App does not contain language, contains very limited language, or the language is age-inappropriate and not child-directed, speech is unclear, its pace is fast and not easy to follow, sentences are overly complex.	
Adjustable content	Content is usually adapted according to child's performance, i.e. (a) if child gives a wrong answer (or several wrong answers), the app might provide item that is similar to the one missed, simplify the skill, and/or (b) if child's performance is very good, the app provides higher level of difficulty	Content is not automatically adapted to child's performance, but app enables child/caregiver to manually set an age/stage appropriate level of difficulty (e.g. app asks about child's age, child can choose to read the story or being read to, child can choose small vs large letters or tracing vs no tracing)	Content is not adapted to child's performance (i.e. app never simplifies the content if child struggles with a task and never makes the content more challenging if child is doing very well), and the app does not enable child/caregiver to manually set an age/stage appropriate level of difficulty.	
App design	The design is simple and consistent, the pictures and letters are clearly visible, operating buttons are arranged in a clear way, the app does not include unnecessary advertisement, additional in-app purchases and loads quickly. App is also easy to use and is always responsive to touch interactions.	The design is generally quite simple and consistent but minor problems may occur: (a) the pictures and letters are not clearly visible, (b) operating buttons are not arranged in a clear way, (c) the app includes some unnecessary advertisement, (d) takes a while to load activities, (e) has some additional in-app purchases, (e) is not easy to use or (f) not always responsive to touch interactions.	The design is overly complicated and not consistent, the images are not clear, app includes advertisement, content is very restricted without additional in-app purchases, takes a while to load activities, is difficult to use or is often unresponsive to touch interactions.	
			TOTAL SCORE	

Examples of high scoring apps from our research (out of 20 points*):

CBeebies Storytime – 15 points

Bing Baking – 14 points

Phonics Island Letter Sounds – 14 points

Peppa Pig Holidays – 13 points

Lingokids English for Kids – 13 points

Alphablocks – 13 points

Teach Your Monster to Read – 13 points

*Based on Kolak et al. (2021), which examined the most popular apps for preschoolers in the UK market.

On average, apps in our study scored only **7 out of 20** points.

Read more in our studies:

Kolak, J., Norgate, S. H., Monaghan, P., & Taylor, G. (2021). Developing evaluation tools for assessing the educational potential of apps for preschool children in the UK. *Journal of Children and Media*, *15*(3), 410-430.

Taylor, G., Kolak, J., Norgate, S. H., & Monaghan, P. (2022). Assessing the educational potential and language content of touchscreen apps for preschool children. *Computers and Education Open*, *3*, 100102.