

IL131

SERIOUS TABLETOP GAME DESIGN

**A REVIEW OF MAHJONG
AS A RECREATIONAL
AND SERIOUS GAME**

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2111082

1 Introduction

Originating in 19th-century China, *mahjong* (麻雀) is an abstract tile-based game, typically played by four players. A history of the game, especially with regards to its spread in the 20th century, may be found in (Rep, 2006).

Players maintain a hand of 13 tiles, drawing and discarding tiles, aiming to be the first to form a legal hand of 14 tiles.

Basic strategy involves analysing opponent discards to read their hands, optimising discards, and balancing aiming for risky high-value hands against safer lower-value hands.

2 Mahjong Tiles

Many regional variants include extra/different tiles, but a basic mahjong set will include the following 136 tiles:

	Set	Count
Suit	Dots	36
	Bamboo	36
	Characters	36
Honor	Winds	16
	Dragons	12

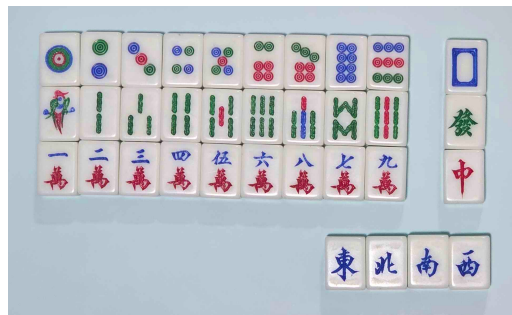


Figure 1. Left: *Breakdown of tiles in a standard (Japanese) mahjong set.*
Right: *One of each tile.* (Original image.)

There are three suits, *dots*, *bamboo*, and *characters*, each with values 1 to 9; four *winds*; and three *dragons*; with each tile having exactly 4 copies in a set.

2.1 Hong Kong Old Style Mahjong

Hong Kong Old Style Mahjong (HKOS) is one of the most popular variants of Mahjong played in China, and is one of the oldest and most basic forms of the game.

2.1.1 Setup

To play HKOS, you need four players, each one named a cardinal direction (the *seat wind*). A full game of mahjong consists of 4 rounds (also named after the winds, starting with East), each consisting of four *hands*.

The East seat scores and pays double points, and is called the *dealer*.

After shuffling, the players stack a *wall* of tiles in a square:

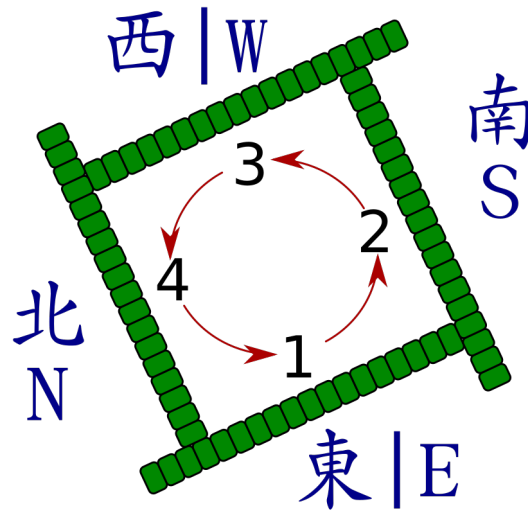


Figure 2. *A prepared game.* (Wikimedia Commons.)

The dealer, determined either by dice or wind tile draw, then breaks the wall and deals 13 tiles to each player.

2.1.2 Player Turns

On their turn, a player draws a tile, then discards one tile.

The players aim to complete a hand of 14 tiles, consisting of 4 groups or *melds* – either a set of three identical tiles (碰, *pon*), or three consecutive suited tiles (吃, *chii*) – and a pair of matching tiles, the *eyes*.

Instead of drawing from the wall, players may also claim discards under certain conditions. In particular, winning from another player’s discard causes that player to pay the *entire value* of the hand to the winner. (Otherwise, the cost is split amongst the other three players.)

2.2 Riichi Mahjong

Riichi mahjong is a Japanese variation of mahjong, augmenting HKOS in several ways, some of which are listed below:

- Hands must now not only have enough valid melds, but also include one or more *yaku* (valid patterns or conditions) to be legal. For instance, having a meld containing the wind matching the seat/round wind is an easy (and low-value) *yaku*.
- A player may declare *riichi* when one tile away from winning, betting 1000 of their points and fixing their waiting tile, gaining extra points upon if they win.
- Scoring is more complex and nuanced.

2.3 Review

HKOS is easy to learn, especially with an experienced player present. I usually keep a travel set in my bag, and have, on several occasions, roped unsuspecting students into playing, usually with them understanding the game within a single hand and playing for several hours.

Even without guidance, there is an abundance of online tutorials/apps available. The game is also commonly played by very young children in Asia, attesting to its simplicity.

As an abstract game, Mahjong has little in the way of narrative, but this merely distills the strategic essence of the game (akin to chess or go). This also makes the game approachable and easy to pick up, as people don't have to spend time becoming invested into characters.

Despite this, the game remains tense and exciting – only growing stronger as your hand becomes closer to completion – as each tile you draw could be your winning tile; and at the same time, every tile you discard could be someone else's victory.

Each hand also only lasts 5-10 minutes, and the game can be cut short at any time, leading to a flexible playing experience.

2.3.1 Accessibility

Mahjong sets vary in price vastly, ranging from inexpensive plastic sets, to engraved ivory tiles: there is a set available for every price point.

Mahjong sets are also available in a variety of sizes:



Figure 3. *A variety of tile sizes.* (Sloper, accessed 2025.)

Larger tiles could benefit those with mobility difficulties finding smaller tiles harder to pick up, while smaller travel sets are lighter and could help someone with grip difficulties.



Figure 4. *Tiles under trichromatic and deuteranopia vision, edited with* (Colblinder, accessed 2025.)

The distinct symbols also make the tiles distinguishable even without colours, making HKOS accessible those with di-/monochromacy. Further still, the engraved symbols allows sight-impaired players to distinguish tiles from touch alone.

However, riichi mahjong has some features that are less (colour-)blindness friendly. For instance, red-coloured bonus tiles that are indistinguishable from ordinary tiles under deuteranopia, and some colour-based yaku.

While the dots and bamboo are easy to read, characters and wind tiles may be difficult for people unfamiliar with kanji. However, sets with Arabic numerals are now easily available in the West, or alternatively, one could keep a translation table on paper.

Conversely, mahjong serves as a useful opportunity to learn kanji: several of my friends who are learning Chinese/Japanese found the game very helpful for learning numerical kanji.

3 Mahjong as an Educational Tool

Mahjong, unmodified, is not a serious game, aside from its minor role in learning kanji. However, its nature as an abstract game whose goal is pattern matching makes it amenable to adaptation for serious use-cases, simply by replacing the symbols and yaku.

For example, (Tsai *et al.*, 2014, p152) developed a mahjong-like game for teaching English vocabulary, with letters taking the place of suited cards, and melds/yaku being formed from valid words.

In a finance/business setting, the game could alternatively be framed as uncertain trade dealings, with the riichi mechanic serving as a kind of investment or a futures contract.

Or, as an application in chemistry education, the suits could be replaced with elements, and yaku could be certain groups of compounds, scored according to reactivity, or some other appropriate property. (Cossairt and Grubbs, 2011) have previously created a game *Chemical Mahjong* along a similar theme, though this game is based off of *solitaire* mahjong. However, an expansion of this idea to include more mahjong-inspired mechanics is certainly feasible, as outlined above.

Mahjong also lies amongst the upper tiers of Bloom's cognitive taxonomy (Bloom, *et al.*, 1956, p201), with players not only having to analyse their own hands and create yaku, but also evaluate the other players' discards, judging whether each tile is a defensive play/bluff, or a risky attacking maneuver.

Mahjong could also help to train some skills in the psychomotor domain (Simpson, 1966, pp.25-30) in people of a variety of ages. For instance, (Tsang *et al.*, 2016) have shown that older mahjong players have better eye-hand coordination than healthy controls.

4 References

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